

# THE INDUSTRIALIST.

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KANSAS STATE AGRICULTURAL COLLEGE.

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No. 28.

## KANSAS STATE AGRICULTURAL COLLEGE.

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### COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner. College Lands and all business connected with their sale are in charge of the Land Agent.

Bills against the College should be presented monthly, and, when audited, are paid from the office of the Treasurer, in Manhattan.

All Payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka.

The INDUSTRIALIST may be addressed through Prof. E. M. Shelton, Managing Editor. Subscriptions are received by Supt. Geo. F. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Kellerman, chairman of the committee on Museums.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding places, etc.,—may be obtained at the office of the President or by letter.

### Beware of Bogus Dentists.

The operation of pulling teeth is not ordinarily regarded as an "entertainment," either by the dentist or his victim. Yet it was made so by a "professor" in Reading, Penn., who was arrested there a few days ago. He called himself a painless tooth extractor, and had a brass band and a variety singer, who acted as a popular allurement, and hundreds of people were enticed into the operating establishment and there induced to part with their teeth, and then with their money, for worthless medicine and more worthless advice. There is a class of traveling and advertising dentists who go about the country and practice their art upon credulous people, in ignorance of its principles, whose sufferings in the end are only heightened by the mistaken means they have taken for relief. The art of dentistry has made a great advance within a few years; and what was once deemed impossible, is now easily accomplished. It is probable that the time is not distant when to draw a tooth because it aches will be regarded as absurd as to lop off a finger because it is painful. Teeth are treated and "doctored" with as much system and success as any other part of the organization, and are preserved to a good old age as assuredly as an eye or an ear. But they must be examined and inspected by a competent dentist every year or two, to discover whether there are any signs of decay, and to remove deposits of tartar which may threaten them. Such an examination is simple and cheap, and saves much pain and cost in the end. Of course no one should neglect the daily habit of using a tooth-brush, by which means all clinging particles of food and minor accretions that disfigure the teeth are removed. Nothing adds more to the good looks of a man or woman than well-regulated teeth, and nothing is more unbecoming than a mouth with bad or broken or discolored teeth, the relics and ruins of what might have been ornamental and useful. It is a great comfort to possess good teeth to the end of life, and the comfort is worth paying for. If properly taken in hand early in life, and when the first indications of decay appear, they may be made secure for all time. But we must caution our readers to employ only the best service, that which they know to be competent, skilled and intelligent; and as said above, to eschew dental tramps and such as emblazon their pretensions with placards and other pretentious humbugs. There are quacks who practice on the pocket alone, but those who add to this practice that of endangering life and health are first of all to be condemned and shunned. The farmer takes the best of his own products for his own use. He should be as careful when he goes outside for the other wants of his family, and not allow the entrance of anything detrimental. He must watch everywhere against ignorance or humbug. It is often said that dental work is expensive. It is, because it deals largely with gold. But it is one thing to prevent decay and guard against the inroads of harmful agencies. That is comparatively cheap. The cost comes in when neglect has been long continued, and has done its full work of injury. Then the reclamation is tedious, painful and expensive. It is better to ward off evil than to pay for the damage entailed by it.—C. P. Deucey, in *American Agriculturist*.

### Axial Change of the Earth.

On the last day of the year, the earth was in perihelion, or at its nearest point to the sun. At that time, the distance between the two bodies was about three million miles less than during our northern summer, in July. Though the earth now receives six per cent more light and heat, the northern part of its axis being turned away from the sun gives us the cold of winter. There is, however, a greater equality of temperature—bad as we are apt to call it, when the daily range may be from forty to fifty degrees—on account of this proximity of the earth

and sun in winter and their distance in summer. In the southern hemisphere, the extremes of temperature would be almost unbearable under the present regime, were the land disposed as at the north; for there the conditions are reversed, and the sun is nearer in summer than in winter. The effect, however, is largely counterbalanced by the great predominance of water in that hemisphere. Less marked extremes are possible in the presence of such large bodies of water than would be the case at our own land-engirdled north. But the present order of things is not permanent. Nature is never stationary, and after some thousands of years the orbit of the earth will be changed. Other things being equal, the extremes of heat and cold in the northern hemisphere will be unprecedented.—*Scientific American*.

### The Spongy Middleman.

The advantage of low rates for farm produce is caught and retained by the middlemen. Three illustrative instances of the disproportion between buying and selling prices are cited by the *Northern Christian Advocate*:

"Wheat has declined fully 33 per cent since 1882; but, at retail, flour is down only about 12 per cent. All kinds of neat cattle are cheaper than they have been since the war; farmers who have them to sell can find no market for them. The very best beef is offered in Syracuse, Utica, Oswego and Auburn at \$4.50 to \$5.50 per cwt. by farmers and butchers; yet people who buy beef by the pound are paying about the same prices that were asked when all sorts of fatted cattle were scarce, and beef at wholesale sold readily at \$10 to \$12. Cheese has hardly paid for making this year; thousands of tons of good cheese sold below 5 cents a pound, and much as low as 3½ cents; but the city buyer, or, indeed, the very farmer who made it, will have to pay at the store from 10 to 14 cents a pound for the same cheese, and he often gets short weight besides."

As a possible advantage to both producer and consumer, our contemporary suggests the establishment by farmers of retail agencies in towns. "If co-operative store-keeping ever was justified, it certainly would be now in the interest of depressed agriculture."—*New York Tribune*.

### Our Exchanges.

J. H. Thompson, of Butler county, recently sold a steer that weighed 1500 pounds at two years and nine months old.

Farmers from different portions of the country report to us that the winter wheat is in excellent condition, and that bountiful crops may be confidently expected this season.—*Norton Courier*.

Considerable plowing has been done already by our surrounding farmers. It is not a bad plan to do plowing as early as possible in the spring, and the agriculturists are beginning to realize it.—*Thayer Headlight*.

The center of population in Kansas is figured as being near the southwest corner of Morris county,—in the fifth tier of counties from the eastern part of the State, and about the center of the State north and south.—*LaCygne Journal*.

We have learned from a number of prominent farmers in this vicinity that the wheat is injured to some extent,—some pieces are completely killed out; but the larger part of the acreage is looking well, and a good crop is anticipated.—*Osawkie Times*.

Kansas is a blue-grass country—if not blue-grass, it is an orchard-grass country, for this grass seldom fails. No crop pays like grass; and the farmer who sows five or ten bushels of seed each year is the farmer who will have a bank on his farm in the next ten years. All we need to have tame grasses here is to sow the seed.—*Geuda Springs Herald*.

The Florence papers announce the discovery of coal five or six miles west of that city, which would make it seven or eight miles from Marion. It is said that a Mr. Schneider, while digging a well, struck a vein of good coal at a depth of fifty feet. It is further said that the vein has been penetrated one foot in thickness, and the end not reached.—*Marion Record*.

The money involved in the loss of 200,000 head of cattle in Texas, if the number be not exaggerated, would have erected, shelter places from the storm for many times that number. The occurrence of these blizzards—"northerns"—every winter, it would seem should suggest to prudent ranchmen some permanent protection for their herds.—*Lafayette Democrat*.

A few warm, sunny days causes the farmer of southern Kansas to drag his plows, cultivators and other farm machinery out of the fence corners—where they have reposited since last summer—and rub the rust off them preparatory to commencing spring work. The early-planted crop is the one that succeeds in Kansas, and all of our best farmers know it and govern themselves accordingly.—*Howard Courant*.

Edward Atkinson, the well-known statistician, presents figures showing that the railroads of the United States give employment to 650,000 people, and transport 400,000,000 tons of freight annually, one half of which is food and fuel; and furthermore, it is proved that the freight rates are so low that the eastern mechanic can have a year's supply of food hauled from a distance of 1000 miles for the proceeds of one day's labor.

The laboring men are the palace builders of the world; not a stick is hewn, not a stone is shaped in all the lordly dwellings of the rich, that does not owe its beauty and fitness to the skill of the mechanic or the laborer. The towering spires that raise their giddy heads among the clouds depend upon the mechanic's art for their strength and symmetry. Not an edifice for devotion or business or comfort but bears the impress of their hands.—*Leavenworth Times*.

There is nothing more liable to result in the successful career of a young man than confident self-reliance. It is astonishing how much more a youth will accomplish who will rely upon himself than one who depends on others for assistance. Having first ascertained the direction in and the means by which his object is to be reached, let him put his whole energies to work, and with unflagging industry press forward. The young man who, instead of rising at five, sleeps till seven or eight, and who spends his evenings on the corners, or in the companionship of those who are wanting in laudable ambition, rarely ever wins a position of honor or achieves a reputation above that enjoyed by the common masses.—*Exchange*.

There is but one thing we know about farming in Kansas, and we have learned that by twenty years of experience and observation—mostly observation. The early farmer in Kansas is the one that raises the crops. Farmers coming from the East govern their farming by the experience gained there, and hold back from putting their crops in the ground, to avoid the cold spring rains and late frosts. A Kansas spring is just the opposite. There are no cold rains and late frosts. Corn comes up with the grass. The first day that the plow can be started it ought to be put into the work, the ground prepared and the seed planted; but little rain will fall in March, April and along in May. The latter part of May the rains will begin to fall and continue through June. Lucky is the man whose corn is in good condition to go into the wet spell. A cold, wet spring that rots the corn in the ground is the exception; and frost never. The early farmer raises crops in Kansas.—*Kiowa Herald*.

# THE INDUSTRIALIST.

SATURDAY, FEBRUARY 27, 1886.

EDITED BY THE FACULTY.  
E. M. SHELTON, MANAGING EDITOR.

## Application of Electricity.

Ever since the discovery of the method of exciting electrical energy by the use of dynamo machines, there has been an increasing expectation that this energy will be widely applied in the arts to drive machinery. This expectation has had at its foundation the facts that moving forces from any source,—as steam, water-power etc.,—may be converted into electrical energy and again recovered as moving force with comparatively little loss; that the amount of electrical energy developed has, theoretically, no limits aside from the amount of power applied to the dynamo machines; that electrical energy may be carried, from the place where generated to any place where it is desired to apply it, on inexpensive wires with small loss; and that electrical energy may be stored in large or small quantities and held until wanted.

With these for a basis, inventors have gone to work to apply electricity to the purposes of civilization. Their success has been almost perfect in the department of electric lighting. But the time has not yet come when railway locomotives and other heavy moving machines are propelled by this willing agent. The engineer who compares the cheap production of power by large stationary engines, located among coal mines, with its costly production in locomotive engines, cannot but hope for and expect the time when the cheap power will be converted into electricity, wired to the motor of the train and there converted into moving power. So also the engineer, whose stationary engine is remote from coal mines, who heats his boiler with coal where it costs two dollars for transportation for every dollar of the original cost of the coal, is pardonable for soliloquizing on the willingness of electricity to speed along a slender wire, carrying, almost without cost, the energy produced by the combustion of the coal at the point where the original first cost is the only cost.

Theoretically, the problem is simple. The practical difficulties to be overcome are similar in magnitude to those encountered in other applications of forces to the service of man. Nothing but intelligent, patient labor and experiment can overcome these difficulties. There are comparatively few who are capable of even working at this problem, which requires not only a knowledge of the ordinary laws of mechanics but also a knowledge of the laws of the subtle energy sought to be applied. It is therefore not a matter of wonder that, in the few years since the first large dynamo electric machines were made, electricity has conquered but a part of the field of its application. But the delays have not disheartened those who are at work in this line, nor lessened their expectation that in the future a large percentage of the machinery of the world will be driven by electric energy generated at great centers; and that railway trains will be relieved of the smoke and cinders and puff of the locomotive, which will be replaced by a silent motor, urged by an unseen power generated at a central station.

The power of steam has had comparatively little application to the purposes of agriculture, because of the difficulty

of transporting it over the soft fields. It may be a long time before electricity shall be able to do much more than is done by steam; but the ease with which it is transported suggests a superiority and renders it probable that more land is to be plowed by electricity than by steam.

An effort is just now being made in England which it is hoped will result in the economical application of electricity to the purposes of propulsion. In this experiment electrical storage batteries are used on the locomotive to carry the stored-up energy, and it is fed to the motors as needed. The locomotive is to be used to draw tram-cars. It is estimated that the cost of the necessary appliances for generating the electricity, and for propulsion, will be considerably less than the cost of the horses, etc., which will be replaced, while the cost of maintenance is put at forty per cent less. The success of this experiment will open the door to much more extended applications of electrical energy. If, however, this attempt fail, it will probably point the way to modifications necessary to success.—*Prof. Cowgill.*

## Boys in the Home.

Many of the homes in our land have only boys for young people, and the tired mothers often sigh for the help of a daughter, feeling that, if they could, they would almost exchange one of their brave boys for a girl. Sometimes into such families a homeless waif drifts and becomes, in very truth, a daughter, finding home, love and comfort waiting for her.

It seems God's way of providing for many of the orphans of the land, by making some home feel its desolation, so as to make a place for these wanderers; but there are many other homes where there are not ample means, and where the sturdy boys really take all the care, the money and the responsibility of the bringing up, that the father and mother can command. Then, many times the mother has a hard time with her housework, and often she learns to depend largely upon one boy, frequently the weakest physically; and she may, if not careful, be too exacting of him in the house, and not allow him enough of outdoor life to make him that greatest of blessings—a manly boy. Instead of depending upon one, how much better is it to have all of the boys feel that they each have some task! If there be a houseful of girls, each one has her own work about the house: as they grow up, one may teach, another clerk, another may sew, or one may write; but each one has her own work for the home to add to the day's duty; and, when the mites are added, they nearly wipe out the home work. If the mothers could do this same way by the growing boys, wouldn't they make better sons and better men all their lives? I know a man who, when a boy, wiped the dishes for his mother, while his two brothers made the beds, for more than ten years; and more energetic, true-hearted gentlemen than those three would be hard to find.

We all know the difference around the house between the father who is a handy man, who can easily help in an emergency, and the one who helplessly wrings his hands, not knowing what to do.

The ability to do in manhood comes largely from being put to doing as a boy. If mothers would spare themselves a little more, wait on the boys less, and teach the boys to wait on mother or—if they are there—on the sisters, we should

find more gentle men in the world as the boys step into manhood with its cares and troubles. More than all else do the boys need their mother to be their friend and confidant; she can scarcely keep herself too keenly alive to the pleasures, the companions and to the tendencies toward forming habits of her boys. It is a disadvantage in many ways to have no sisters; but when one of five boys said once: "If we had had sisters at home, we should have been better men, should have lived differently at home, and might have carried with us more influence for good as we went into other houses,"—I felt sure his mother had forgotten to keep herself a companion for her boys; and, though she had done much for them in the way of spending money and worrying over them, she had been chary of confidence in them, because she had not kept their childhood confidence in her. There is no better way to keep the boy's heart than by keeping him with his mother a little every day. If he helps his mother in the home, he will see many and many a chance to help others whom he meets outside. And helpfulness is never too abundant in this world.—*Mrs. Kedzie.*

## Report for the Mechanical Department, 1884-85.

To the Board of Regents:

GENTLEMEN—I herewith submit the following report for the Mechanical Department for the year ending June 30th, 1885:—

Number of students enrolled in the fall term, 135; during the winter term, 120; during the spring term, 85. Enrolled in the blacksmith shop 12. Whole enrollment for the year 352.

The course taken in the instruction of students has been to give all students, in their first year in the shop, as much instruction in the care and preparation of all tools used, with the proper methods of dressing out all kinds of stock, and such advanced work in making articles for themselves, if they choose to do so, or on such work as is required for use of the College. Students who remain through more than one year and elect to learn some wood-working trade are instructed in making such joints and getting out stock in such manner as is most likely to be required in their especial trade; all such work being done after detail plans or sketches of the same, so that the connection of the lines with the work may be readily understood.

The financial condition of the Department can be seen by the following figures:—

### DEBITS.

Inventory of 1884.....	\$2356.64
Hardware and other supplies.....	961.50
Lumber, doors, sash etc.	1313.49
Labor of students and other employes.....	1250.56
Department Bills.....	26.49 \$5908.68

### CREDITS.

Inventory.....	\$2653.06
Cash receipts.....	194.15
Department receipts.	2510.13
Bills not audited.....	30.67 \$5388.01

Balance against Dept. \$520.67

The balance against the Department has been expended for improvements in the arrangements of the shop, the care and fitting up of tools, repairs and improvement of benches and other appliances for work; replacing of worn-out, broken and lost tools; assistance in the shop; cleaning up and general care of the shop; waste of materials by students in practice hours; and the general expenses of running the Department. I think an allowance of about one hundred

and fifty dollars will be needed the coming year to keep the supply of tools up to its present standard and add such new ones as may seem desirable.

Respectfully submitted,  
TIMOTHY T. HAWKES.

## General Duties and Privileges.

General good conduct, such as becomes men and women anywhere, is expected of all. Every student is encouraged in the formation of sound character by both precept and example, and expected "upon honor" to maintain a good repute. Failure to do so is met by a prompt dismissal. No other rules of personal conduct are announced.

Classes are in session every week-day except Saturdays, and no student may be absent without excuse. Students enrolled in any term cannot honorably leave College before the close of the term, unless excused beforehand by the Faculty. A full and permanent record of attendance, scholarship and deportment shows to each student his standing in the College. After each monthly examination a report of advancement is made to parents; and any student, upon leaving College at the close of a term, may receive a certificate of standing.

Chapel exercises occupy fifteen minutes before the meeting of classes each morning, and unnecessary absence from them is noted in the grades.

Twice in each month the whole body of students gather for a lecture from some member of the Faculty, or for the rhetorical exercises of the third and fourth-year classes. On alternate weeks all the classes meet at the same hour, in separate class-rooms, for exercises in elocution and correct expression.

There are three prosperous literary societies, two of them of many years' standing. All meet weekly, in rooms set apart for their use. The *Alpha Beta* is open to both sexes, and holds its meetings Friday afternoons. The *Webster* and the *Hamilton* admit to membership gentlemen only, and meet on Saturday evening.

The Scientific Club, composed of members of the Faculty and students, meets in the Chemical Laboratory on the first Friday evening of each month.

Every Friday evening a students' prayer meeting is held in a College Society Room, led by a member of the Faculty. On the Sabbath students are expected to attend services at least once in the different churches of the city.

Occasionally during each term the College Hall is opened for a social gathering of faculty and students, in which music, literary exercises and friendly greeting find place.

Public lectures by prominent men of the State are provided from time to time, as opportunity offers. All are free.

The Manhattan Horticultural Society meets monthly, and other farmers' associations occasionally, at the College, and the students have the privilege of attending these meetings.

## Objects.

This College now accomplishes the objects of its endowment in several ways.

First, it gives a substantial education to men and women. Such general information and discipline of mind and character as help to make intelligent and useful citizens are offered in all departments, while the students are kept in sympathy with the callings of the people.

Second, it teaches the sciences applied to the various industries of farm, shops and home. Chemistry, botany, entomology, zoölogy and mechanics are made prominent means of education to quick observation and accurate judgment. Careful study of the minerals, plants and animals themselves illustrates and fixes the daily lesson. At the same time, lessons in agriculture and horticulture show the application of science; and both are enforced by actual experiment.

Third, it trains in the elements of the arts themselves, and imparts such skill as to make the hands ready instruments of thoughtful brains. The drill of the shops, gardens, farm and household departments is made a part of a general education to usefulness, and insures a means of living to all who make good use of it. At the same time, it preserves habits of industry and manual exertion, and cultivates a taste for rural and domestic pursuits.

Fourth, it strives to increase our experimental knowledge of agriculture and horticulture. So far as means and circumstances permit, experiments are undertaken with a view to more definite results than ordinary experience can give. By this method the students themselves are trained to a more accurate observation and judgment in these practical tests of principles in farming.

Fifth, it seeks to disseminate such practical truths as have stood the test of scientific inquiry. For this purpose it publishes the *INDUSTRIALIST*; and its officers share in debates and consultations of farmers and horticulturists throughout the State. Each winter a series of six Farmers' Institutes is held in as many different counties of the State. In these the Faculty share with the people in lectures, essays and discussions upon topics of most interest to farmers.

## THE INDUSTRIALIST.

SATURDAY, FEBRUARY 27, 1886.

### CALENDAR.

1885-86.

FALL TERM.—Sept. 10th to Dec. 18th.  
WINTER TERM.—Jan. 5th to Mar. 26th.  
SPRING TERM.—Mar. 28th to June 9th.  
June 9th, Commencement.

Persons receiving the "Industrialist" need have no fear of bills to come; for the paper always stops with the expiration of subscriptions, unless continued by favor of a friend or of the College.

### BONDS WANTED.

School District bonds issued on College blanks will bring their par value at once. Address T. P. Moore, Holton, Jackson Co., the College Loan Commissioner.

Rev. J. F. Bacon, of North Topeka, made the College a visit on Monday.

Unless rains come soon, soft water will be an unknown quantity upon the College premises.

The College buildings have all been well warmed this winter in spite of the storms, but the coal bill shows how it has been accomplished.

Hon. R. H. Roseberry, of Linn county, made a special journey from Topeka, on Saturday, to visit the College. He wished that he could spend three days with us.

A journey through the stables shows some seventy specimens of the four breeds of cattle represented in the College herd. The calves are looking especially well this winter.

B. Buchli, Class of '84, spent a few days here this week. He will continue his studies in veterinary science until October at Ames, Iowa, and afterward at Montreal or New York city.

Spring begins to call away students from classes. If parents could feel the importance of the remaining weeks of this term to their sons and daughters here, they would put off calling them till March 26th.

Each student of the third-year class is putting his best efforts in the line of plotting upon a complete plan of the College Farm and grounds after surveys made last fall. The maps are about three by four feet in size, and well finished in colors.

Now is a time for the city to put in order the walk from town to the College. As soon as the spring rains come there will be places practically impassable, left so by the grading of last fall. Something must be done for the good name of the city in this respect.

A package of quarterly reports from Secretary Sims this week has set a new geography lesson before us all, and many are seen studying the new map of population and the various statistics of live-stock and crops. The geography of our State is a larger part of our education than it used to be.

The general verdict on the discussion of the international copyright question by the various "furniners" at the social on Monday evening was well expressed, we think, by one old lady who remarked that it was all very nice, but that she could not understand what some of the speakers said.

Prof. Shelton has made a prosperous trip to Canada this week, having purchased a fine young imported Cruikshanks bull for the head of the College herd, of which the public will hear more on the arrival of the animal. This journey also brings four bulls of the same famous breeding and importation for the herd of Col. Harris, of Linwood.

The first division of the fourth-year class, consisting of three young ladies and eight young gentlemen, occupied the public hour on Friday afternoon. The rounds of applause from the students which greeted each speaker and the favorable comments by the many visitors present showed that these orations possessed the qualities of good delivery and solid substance. The class did well.

Prof. Popeno's apparatus for the study of insects is lately increased by a dozen breeding cases, made and largely planned by Mr. Geo. E. Hopper, Foreman of the Horticultural Department. They are of walnut, as neatly finished as cabinet work, and do credit not only to Mr. Hopper but to our shop where he had his training. Winter is not unprofitable to a man with tools and skill to use them.

A photograph of the convention of delegates from agricultural colleges and experiment stations, assembled at Washington last July, has recently been hung in the President's office. It represents a group of fifty upon the steps of the U. S. War Department building, after their visit to the White House. Commissioner Colman, with his vice-presidents, is in the foreground. One familiar with the faces can point out some thirty college officers in the group.

Washington's birthday was celebrated here by the social gathering of the winter term. The chief feature of the social, aside from excellent music, was a discussion of international copyright by representatives of England, Wales, Sweden, Denmark, Germany, Yankeeland, Mexico, America, and Indian tribes—all in their native costume and through their native tongue. All were introduced by Miss Hail Columbia, under whose protection the meeting appeared. Is it possible to thus gather all nations at most of the schools of our land?

The State Agricultural College is the Kansas farmer's pride. It has three hundred students and an excellent Faculty and an endowment of half a million hard dollars. It fits young men and women for life as life is, and not as they see it in their dreams, and sends them out fully equipped for success.—*Minneapolis Messenger*.

### COLLEGE SOCIETIES.

ALPHA BETA.—Chartered, December 26th, 1870. Meets in the Society Hall every Friday at 2:30 P. M. Ladies admitted. New students cordially invited to attend.

A. M. GREEN, President.

MISS IDA QUINBY, Secretary.

WEBSTER.—Chartered, January, 1871. Meets in Society Hall every Saturday evening. Visitors, especially students, always welcome,

D. G. ROBERTSON, President.

F. H. AVERY, Secretary.

SCIENTIFIC CLUB.—Meets on first Friday evening of each month. Composed of members of the Faculty and advanced students. Devoted to the improvement of its members in general scientific knowledge, and the encouragement of original investigations.

PROF. WALTERS, President.

MRS. KEDZIE, Secretary.

HAMILTON.—Chartered January 29th, 1885. Meets every Saturday evening. Admits gentlemen only. Visitors always welcome.

G. W. WATERS, President.

C. F. GOSS, Secretary.

The Y. M. C. A. meets at 3:30 P. M. Sunday.

D. G. ROBERTSON, President.

C. A. MURPHY, Secretary.

The Y. W. C. A. meets Thursday afternoon.

F. HENRIETTA WILLARD, President.

NELLIE COTTRELL, Secretary.

### REPORTS.

SOCIETY HALL, Feb. 26, 1886.

President Green called the Alpha Betas to order. Music Committee, W. M. Wright, assisted by the Misses Quinby and H. W. Jones, favored the Society with a quartette, F. Henrietta Willard playing the accompaniment. Maria Hopper offered prayer. Lillie Bridgeman then presented an essay, which was written and read as only she could have done it. In the debate which followed, the question, "Resolved, That whatever is, is right," was discussed on the affirmative by S. I. Thackrey and Mary Kolanour, and on the negative by G. W. Norris and Maria Noyes. The judges decided in favor of the affirmative. The *Gleaner*, presented by Fannie Dorman, had lost none of its interest under her editorship. After recess, an excellent duet was rendered by Messrs. Platt and Wright. In extemporaneous speaking, the "land question" was discussed, all the questions bearing on that subject. This was an agreeable change from the usual order.

C. SOCIETY HALL, Feb. 20th, 1886.

The Webster Society was called to order by Pres. Robertson. Roll-call showed that the members were out in good number. The Society was led in devotion by Mr. Miller. The following programme was then listened to with more than usual interest. The question, "Resolved, That there is more pleasure in anticipation than realization," was argued on the affirmative by J. B. Brown and W. H. Fay, on the negative by C. M. Breese and F. H. Avery. The judges agreed, unanimously, that the weight of the argument was with the negative. Then followed essays by G. Arnold and W. Knabb and a declamation by I. R. Miller. After recess, the Society listened to a reading by G. N. Thompson. Grant Gates was proposed for membership. The usual time for extemporaneous speaking was occupied with discussions, given by the following gentlemen: L. H. Dixon, D. G. Fairchild, E. A. Martin and W. C. Parker. These discussions

offered so much information and called forth so many questions that the members expressed themselves well pleased with the change in the order of exercises.

TEDDY.

SOCIETY HALL, Feb. 20th, 1886.

The Hamilton Society came to order with President Waters in the chair. Mr. Hammer led in devotion. F. E. Goss, Treasurer-elect, was then inaugurated. The programme of the evening followed. Debate, "Resolved, That the reinstatement of Fitz John Porter would be unjust;" the contestants being E. M. Paddleford and J. A. Campbell on the affirmative, A. Walters and S. L. Ellis on the negative. The judges decided in favor of the affirmative. An intermission of ten minutes was granted. Following this was a declamation by W. R. Wyatt. A. E. Newman then read an essay on "The Formation of the Great American Desert." Mr. Newman advanced some excellent theories upon this subject, showing that he had given it much study. Next on programme was a declamation by Mr. Greeley. Z. E. Wright then favored the Society with a harmonica solo, it being well delivered. A committee, consisting of A. C. Cobb, W. VanZile, C. F. Goss, E. H. Perry and A. Walters was elected to prepare questions for extemporaneous speaking. Extemporaneous speaking occupied the time till adjournment. We are happy to announce that Prof. Canfield, of the State University, will deliver a lecture for the Hamilton Society on the evening of the 24th of April.

ALE.

### Board and Rooms.

No provision for rooms and board is made at the College. The students all find homes in families or in family boarding-houses, at rates varying from \$3.00 to \$4.00 a week for board with furnished room. Lists of boarding-places, with prices and accommodations, can always be had at the President's office, and students are required to notify the President of their rooms when selected.

Lists of rooms for rent without board may also be had by those who wish to board themselves. Directions and advice are gladly given by any of the officers.

### Labor.

Every encouragement is given to habits of daily manual labor during the College course. Only the one hour of daily practice in the industrial departments is required; but students are encouraged to make use of other opportunities for adding to their ability and means.

The College employs students, when possible, on the farm and in the gardens, shops and offices, paying wages varying in rate with accomplishment from eight to ten cents an hour.

All labor at the College is under the direction of the Superintendents of the departments, and offers opportunity for increasing skill and efficiency. In regular weekly statements, the students are required to observe business forms and principles, showing from their daily account when and where the work was performed. A few students who have shown especial efficiency are employed during the summer vacation.

The shops and offices are open afternoons and Saturdays for the accommodation of skilled students in work for their own advantage. Everywhere the student who works wins respect; and it is a matter of pride to earn one's way as far as possible.

### Earnings.

The labor of the students in the industrial departments is principally a part of their education, and is not paid for unless the student is employed—outside of required hours of labor—upon work for the profit of the College. Students are so employed upon the farm, in the gardens or the shops, and about the buildings. The labor is paid for at rates, varying with service rendered, from eight to ten cents an hour. The Superintendents strive to adjust their work to the necessities of students, and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly pay-roll for the past year ranges from \$377 to \$456.

Many students obtain work in the city or upon neighboring farms, and so pay a part of their expenses. Students employed in the shops are allowed to work somewhat for their own profit, in the manufacture of articles for sale and use. In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide by earnings outside of term-time, or from other sources, for the larger part of their expenses. The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education if he has the ability to use his chances well.

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Corner of Poyntz Avenue and Second St., has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, &c., &c., &c. Goods delivered in all parts of the city, and at the College, free of charge.

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### Kansas Educational Notes.

PROF. J. D. WALTERS.

The teacher's profession is represented by eight thousand members in our State. No one doubts the superiority of our public school system over that of many of the oldest-settled States in the Union.—*Thayer Headlight*.

The work of indexing the vast collection of books, papers, etc., in the State Historical Society, will shortly be commenced. The appropriation of \$1000 for that purpose will enable Secretary Adams to perform this needed work in excellent shape.—*Topeka Citizen*.

Sixty-seven applicants presented themselves, of which three received first-grade certificates, nineteen received second-grade, and ten received third-grade. Of the others, seven were examined in part of the branches, and obtained grades thereon; and twenty-eight failed to reach the required standard.—*La Cygne Journal*.

In regard to school-houses and the uses to which they may be put, the law authorizes school district boards to open them for the use of religious, political, literary, scientific, mechanical or agricultural societies, but does not compel the opening of the school-house for any except school purposes. The teacher is expected to keep the house neat and clean, and it is unfair and unjust to compel or ask him to do janitor work for the surrounding neighborhood. Every school board ought to protect their teacher by requiring every society occupying the school room to clean it well after using it. It is not a pleasant job for any teacher, especially a lady, to shovel dirt and wash up tobacco juice in the morning before opening school.—L. A. Faber, *Supt. Leavenworth county*.

We called at the Cherokee school on Monday and found the machinery of that important civilizer running vigorously and smoothly along. The large new barn has been completed and presents quite an imposing appearance. The school, in both the school room and the industrial department, is progressing nicely, with nearly one hundred Indian children enrolled. We noticed a large class of boys at work in the wood-yard with axes making chips fly in every direction. The boys are instructed in all such work, Superintendent Whiting being a firm believer in the importance of giving his pupils a thorough industrial education, knowing it to be more valuable to them than a mere book knowledge. We understand he intends next spring to make more improvements in the way of building new fences, planting a garden and cultivating an increased acreage of land, in all of which the boys will take an active part.—*Cowley County Telegram*.

One of the institutions of this city is the circulating library of the Independent Order of Odd Fellows, which is located at the barber shop of J. M. Flad, Jr., who has charge of it. At present it contains about 500 volumes of fiction by the best authors, and any person on the payment of a small fee can get almost any book he desires; and with all money thus received new books are purchased as often as possible. During the past week some 50 volumes have been added, consisting of the works of E. P. Roe, Bertha M. Clay, W. Gilmore Sims, and other popular writers. These volumes will be ready for distribution some time during the coming week.—*Waterville Telegraph*.

We would recommend to the Odd Fellows of Waterville the series of popular scientific works noticed in this column last week. You have enough fiction already to "thin" the minds of its readers so that they cannot hold a good solid idea.

#### Talk Correctly.

Probably there is not an instrument in common use, from a pencil to a piano, which is used so imperfectly as language. You were well taught here, and most of you have been using the English you learned for some time since you graduated. But if you will let me be plain, I suspect it would be safe to offer a gold medal as a prize to every young lady here who will not before tomorrow night utter some sentence that cannot be parsed, will put no singulars and plurals into forbidden connections, will drop no particles, double no negatives, mix no met-

aphors, tangle no parentheses, begin no statement two or three times over without finishing it, and not once construct a proposition after this manner: "When a person talks like that, they ought to be ashamed of it."

We all repeat and perpetrate conventional blunders and hereditary solecisms without once applying the study of four or five years in syntax and conjugation to our current speech. Where is the reform to begin? I say emphatically, set about grammatical correctness first of all. Watch yourself. Criticize yourself. Be tolerant with yourself. Get some housemate to expose you. Say over the thing correctly till the mistake is made impossible. It would be no more discreditable to your training to finish a picture out of drawing, or to misspell the name of one of our territories, or to mistranslate a line of Virgil, or to flat in music, than to confound the parts of speech in a morning call.

Nothing is to be said of slang. If I were to exhort those who are here on that matter, it should be only to forbearance, in that they are obliged to hear it from their ill-bred acquaintances. "Awful handsome" and "horrid nice" and "jolly sunset," and all that pitiful dialect, coming of weak heads and early neglect, we shall have to bear with till select and high-toned schools have chastened the manners and elevated the spirit of the better-conditioned classes; and, through them, the improved standard will work its way outward and downward into the public schools and into the homes of the people. Unexpected hyperbole is often witty, but nonsense is not, nor are stale repetitions of non-sense.

An ill-natured bachelor shamefully reports that he has entered in his diary a thousand scraps of talk of young women overheard in streets and houses, of which seven hundred and eighty begin with "Says I" or "Says he," and a hundred and twenty contain the combinations "just splendid," "stuck up" and "perfectly lovely."—*Bishop Huntington's Address before the Keble School*.

#### Marysville School Library.

Prof. Louis Scott, principal of the Marysville schools, has issued a neat little catalogue of their school library. The pamphlet enumerates 776 works, or nearly 1000 volumes, of which 19 are works of reference, 75 books on travel, 107 histories, 161 biographies, 97 fiction, 39 poetry, 63 science and 152 miscellaneous. The following is the introduction of Prof. Scott's pamphlet, which contains, besides the book tables, a fine collection of "thoughts on books":—

"A school library is a necessity. Realizing this fact, three years ago our teachers set about the formation of one. We had but a single book to start with; but, by means of entertainments and a small tax voted by the district, this number has been increased to seven hundred and seventy-six. The library occupies a room, twelve feet square, in the stone building. It is furnished with four neat book-cases, the floor is carpeted, and the walls hung with fine steel engravings of American authors. One teacher is appointed librarian, whose duty it is to give out and receive books. Any pupil above the third-reader grade is allowed the privilege of taking a book every evening, but he is required to return it the next morning. After ordering a book once, a pupil is entitled to it till he has finished reading it. The library has led to the formation of a reading habit by our pupils, which constitutes no small part of their education. With many of them an hour's reading has become a part of their daily life. Finding interesting, cheering and instructive companions among their books, they are led to spend their evenings at home, safe from the corrupt influences of the street, vile literature and evil associates. While thus increasing their information, they gain a clearer and higher conception of life and its duties. They are inspired, by the heroic efforts of the great and good, to purer and nobler efforts. Give a boy this habit and a thorough knowledge of the common branches, and his chances for success in life are better than those of the college graduate without it. Instead of his education ceasing with his school days, it will go on broadening and deepening as the years go by. Our books are being extensively used. Last year two thousand were read, and the first five weeks of this year one hundred

and eighty. To insure thoughtful reading, we require our pupils in the high school to write a synopsis every three weeks of some book. This synopsis includes eight points given by the teacher; an hour and one half is given for its composition, and it is read before the school. Whenever assistance has been asked for the library, our citizens have responded cheerfully and liberally. This is right. We feel encouraged to labor on. We want one thousand volumes by the end of the year. Let every pupil and citizen of Marysville feel a personal interest in this, and we will have them."

#### Grounds and Buildings.

The farms, with the stock, orchards, gardens, vineyards, forestry and ornamental grounds, are used for experiment and illustration. All that is not strictly experimental is managed with a view to highest economy and profit.

On the larger of the farms, upon an elevation at the western limits of the city of Manhattan, and facing toward the city, are the College buildings. All are of the famed Manhattan limestone, and surrounded by pleasantly-arranged and planted grounds.

College, 130 by 250 feet in extreme dimensions, arranged in three distinct structures, with connecting corridors. This building contains in its two stories and basement, offices, cloak-rooms, studies, chapel, library, reading room, model kitchen and dairy, sewing rooms, society rooms and ten class rooms.

Chemical Laboratory, one story, 36 by 99 and 46 by 75 feet of floor space, in form of a cross. It contains eight rooms, occupied by the Department of Chemistry, Physics and Mineralogy.

Mechanics' Hall, 39 by 103 feet, of two stories, occupied by the Carpenter shop and finishing room, Telegraph and Printing offices, and Music rooms.

Horticultural Hall, 32 by 80 feet, one story and cellar, having cabinet room, class room work room and storage, with greenhouse attached.

Two stone dwellings, occupied by the President and the Professor of Agriculture.

Armory Hall, 46 by 96 feet, and two stories. This building, which has served many purposes, is now to be fitted for armory and drill room below, and for class room, laboratory and museum of the Department of Natural History.

The barn is of stone, 48 by 96 feet, with sidehill basement stables, granary, tool-room, etc.

The blacksmith shop, piggery, implement shed, and various out-buildings, are of wood.

#### Expenses.

Tuition is free, and no general fee for incidental or contingent expenses is charged. In a few special departments of instruction, the following payments are made in advance to the Secretary:—

In analytical chemistry, the students pay \$3 a term for the chemicals and apparatus used in their laboratory practice and analysis.

In the printing office, young men, in their first year, pay \$3 a term for office expenses. Advanced students have the use of the office for the work performed during the industrial hours.

In telegraphy young men pay \$3 a term for office expenses.

Young women are furnished both printing and telegraphy free of expense, these two offices, with the Sewing and Cooking Departments, being provided especially for their industrial training.

Lessons in instrumental music, two a week, are from \$10 to \$14 per term, according to its length; one a week, \$6 to \$8.40. One half is to be paid to the instructor in charge with the first lesson, the other half at the middle of the term.

The cost of text-books at the book-store is, for the first year about \$4 a term; for the second year, \$2.75; for the third year, \$7.50; and for the fourth year, \$5.50.

Board and washing are not furnished by the College. Board, with furnished room, can be procured in private families at from \$2.75 to \$4 per week. Some students board themselves at even less cost, and rooms for the purpose can be obtained at a rent of from \$1 to \$2.50 a month. Washing costs from \$0.50 to \$1 a dozen pieces.

Ordinary expenditures, aside from clothing and traveling expenses, range from \$100 to \$200 a year.

#### Required Industrials.

The need of general training of youth to some degree of dexterity in the every-day work of life, is recognized everywhere now-a-days. In this College, each young man spends time enough in the Carpenter Shop to learn how to use the common tools with ease, and do plain work with some idea of exactness. He also gives hours enough to farm an garden work to have clear notions of what they involve, and interest in the success or failure of varieties and methods. Each finds his critical spirit in such matters strengthened by test of his own abilities and judgment in everyday experience. These occupy one term of each year or the course prior to the fourth.

The young women find a similar provision

for their familiarity with every-day affairs in the requirement of one hour a day for one term of the first year, in sewing adapted to their advancement, and in the practice in cooking and dairying required during two terms of the second year. Nimble fingers with the needle may not serve the same purpose as before the sewing-machine snatched the long seams out of the hands of the women; but the ready judgment and taste that make the beauty and comfort of dress are gained only by handling, with careful instruction, the tools that are employed about dress. In the same way, the tact of house-keeping comes by practice under tuition far more readily than under the sharp raps of chagrin and dyspepsia from sour bread, heavy cake and badly-cooked meats.

The required industrials of the course will have served their purpose well in such ways, even if they do not pave the way to skill in these universal arts.

#### Entering College.

Applicants for admission at the beginning of the year, in September, must be at least fourteen years of age, and able to pass a satisfactory examination in reading, writing, arithmetic including percentage and interest, geography and elements of English grammar. Those applying later in the term must show sufficient advancement to enter the classes already in progress. Every effort should be made to begin with the first of the term, in order to advance with the class from the first.

Applicants of mature age who, for lack of advantages, are unable to pass the full examination may be received on special conditions.

Applicants for advanced standing in the course must pass examination in all the previous studies of the class to be entered; but, if they have pursued such studies in other institutions of similar rank, they may receive credit for their standing in those institutions upon presenting a certificate from the proper officer, showing that their course has been equivalent to that given here.

#### A Good Education Pays.

1. In dollars and cents. All testimony of statistics agrees in showing that educated laborers, of all ranks, have better work and better wages than the uneducated.

2. In influence and position. Careful estimates make it certain that the chances of promotion to places of trust and power among men are almost two hundred times as great to an educated man as to an uneducated.

3. In usefulness. The bulk of good work in the world,—discovery, invention, government, philanthropy and religion,—is brought about by those who learn to think by study.

4. In enjoyment. Our pleasures grow out of what we are ourselves more than from surroundings. A well-trained man sees, hears and handles a great deal more of the world than an untrained one. All things do him good, not so much because he owns them as because he understands them. He always has good things to think about.

#### General Course of Study.

Each student is expected to take three studies besides one hour's practice in an industrial art; and variation from this rule can be only with consent of the Faculty.

Parallel courses are offered to both sexes with such differences as their necessities seem to call for. The following gives the general scope of the two; but fuller explanations are found in the annual catalogue.

FIRST YEAR	FALL TERM.	Arithmetic. English Analysis. Geometrical Drawing.
	WINTER TERM.	Book-keeping, Drawing. English Structure. United States History.
SPRING TERM.	FALL TERM.	Algebra. English Composition. Botany.
	WINTER TERM.	Algebra completed. Elementary Chemistry. Horticulture. 14 Lectures in Military Science.
SECOND YEAR	FALL TERM.	Geometry. Practical Agriculture or Household Economy. Organic Chem. and Mineralogy. 12 Lectures in Military Science.
	SPRING TERM.	Geometry completed, 5 weeks. Drawing, 5 weeks. Entomology. Analytical Chemistry.
THIRD YEAR	FALL TERM.	Trigonometry and Surveying. Physiology. General History.
	WINTER TERM.	Mechanics. Agricultural Chemistry. Rhetoric.
FOURTH YEAR	FALL TERM.	Civil Engineering. Drawing, (or Hygiene). Chemical Physics. English Literature.
	WINTER TERM.	Agriculture or Literature. Meteorology. Psychology.
FOURTH YEAR	SPRING TERM.	Logic, Deductive and Inductive Zoology. Structural Botany.
	SPRING TERM.	Geology. United States Constitution. Political Economy.

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### COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

College Lands and all business connected with their sale are in charge of the Land Agent.

Bills against the College should be presented monthly, and, when audited, are paid from the office of the Treasurer, in Manhattan.

All Payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka.

The INDUSTRIALIST may be addressed through Prof. E. M. Shelton, Managing Editor. Subscriptions are received by Supt. Geo. F. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Kellerman, chairman of the committee on Museums.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding places, etc.,—may be obtained at the office of the President or by letter.

### Wasted Fertility that May Prove Fatal.

The farmer who wishes to make as much money as possible out of his business must take better care of the home manure supply, and better use of it. Those living on new, rich prairie land may think themselves exceptions to this rule, and perhaps they are for the present, but they will not be long. There are few farms in the older States where good stable manure, properly applied, will not double the yield of corn, wheat, potatoes and hay. If you do not think so, just compare the average yields of your State with those of your very best farmers. For example, here in Ohio, fifteen bushels per acre is about the average of wheat, perhaps. Mr. D. E. Fenn, of Summit county, has raised nearly two and a half times that quantity, on the average, for a term of years. One and a half tons of hay to the acre is a large average yield, but we have plenty of men who have taken poor farms and brought them up until they produce three or even four tons per acre, in two or three cuttings. Heavy manure will tell still better on the potato crop. Of course when I say that manure will double the yield on certain farms, it is understood that the land is to be underdrained, if it needs it, and is to be suitable for the crop, and that the crop shall be properly cared for.

I think that at least one half of all the manure made is wasted, in one way or another. Go with me on a visit to a few average farms. What do we find? Nearly always the liquid manure quietly draining through the cracks in the stable floor. A farmer who is "too poor" to take an agricultural paper will let \$100 or more slip from him in this manner during the winter. Then perhaps he will buy \$100 worth of commercial fertilizers, the money for which goes into the other fellow's pocket instead of his. Often we find the horse manure thrown out by itself and quietly sending its most valuable part into the air, as a result of too much heating. The liquid having drained away under the stable, and the ammonia having been sent into the air by too great fermentation, and the rains having washed away at the poor remainder, how much finally gets onto the land? The farmer may consider himself lucky if this wasted fertility does not injure the health of his family, by finding its way into the well-water or contaminating the air around the dwellings.

We will often find ton after ton of this liquid manure or barnyard drainage going down into the earth and the farmer using a well or spring in close proximity. The penalty will have to be paid sooner or later. Providence will never save one unless he regards the laws of health. Again, many barnyards will be found draining directly into a creek, and very likely no water conductors on the barn. Well, perhaps the fertility might better be carried away by the running water than soak into the earth all in one place, as is often the case in level barnyards. Another thing we find is stock going quite a distance to get water in the winter, perhaps to some pond or stream, where a hole is cut in the ice for them to drink. Any observant farmer knows that much manure is lost at such times, to say nothing of the poor economy of allowing animals to drink ice water. On some farms the cattle are allowed to stand around outdoors, in lanes or fence corners, much of the time in winter. Well, there will be less manure to clean out, "less trouble," but there will also be less profit.

Now, how had the good, business-like farmer ought to care for manure? He certainly ought to save it almost entirely without loss. The process is not so difficult but that it will pay him well, provided he make proper use of it. The way will vary on different farms. For one thing, all stable floors should be absolutely tight. Water should be furnished in the yard or barn. Where land is level, and no danger of washing away, the ma-

nure may be drawn out to the field and spread as fast as made, absorbents enough having been used to hold all the liquid. If it is to be piled, mix horse and cattle manure so as to prevent the excessive heating that is apt to take place if the former is piled alone. If your stock trample on the pile, it will not be likely to heat too much. If it does, with a hose from your pump put on a little water. A pile may be built in the yard and so managed and cared for as to lose very little of its value although not covered by roof, but one will need to be constantly on the watch. I have done this way for many years, and by careful tests I know I have not lost much fertility; but I believe there is a better way.

In a year or two I hope to build a new barn, with all the stable floors of stone and cement, and so arranged that the horse and cattle manure can be gathered into one small yard. Then I will put a roof over that yard, connected with the barn, and spread the manure all around and let the stock exercise on it. The stock will not need to go out from under cover all winter. The manure will be safe from loss until wanted. Of course, I will have the barn large enough to hold all straw and hay. I believe I can not only save manure and make money, but that I can have a first-rate time doing chores in such building. Just think: No muddy barnyard! No getting straw from a frozen stack! No exposure to the storm! Why, who wouldn't be a farmer?

The covered barnyard will be sheltered on the north by a tool and carriage house, already built, 22x56 feet, and one on the west by the main barn.

All it will need is a roof, supported by posts.

The expense of this will not be great.

Particularly would I urge

that manure be spread very evenly,

finely pulverized and mixed with the soil.

Ten loads may be made to give more im-

mediate return than twenty carelessly

spread.—T. B. Terry, in New York Tribune.

### Our Exchanges.

During one of the cold storms of January, A. W. Arnott missed one of his cows while returning from watering. On Saturday morning last he found the cow standing straight up in a snow drift, where she frozen to death. The snow had melted sufficient to leave the upper part of her body exposed.—Blue Rapids Times.

The latest device of an enterprising tobacco dealer is to give a monkey-wrench with each fifty-cent plug. It is a mistake. The scheme embraces too much of the useful and too much certainty for modern human nature. The average man would prefer one chance in 45,000 of getting a three-dollar shotgun said to be worth \$75, or an eighty-seven cent watch, to securing a monkey-wrench of his own on a dead certainty.—Douglass Tribune.

I. Horner, the mulberry tree enthusiast, has submitted to the Santa Fe managers a scheme, which, if put in execution, will beyond a doubt prove a successful remedial agent against the drifting of snow upon the railroad track. The plan is to line the track with thrifty growing Russian mulberry. The Santa Fe are favorably impressed with the scheme, and chief engineer Rhodes has been sent out to study the practicability of the scheme. No doubt it will be adopted, and thus, in the future, the difficulties contended with this winter will be fully obviated. Engineer Rhodes and Mr. Horner were in the city yesterday on their tour of inspection.—Dodge Globe.

Geo. R. Cooper, of Myers Valley, paid us a pleasant call Tuesday. He spoke of an experiment tried by Peter Nolle of that place which was followed by noteworthy results. Last fall Mr. Nolle ran the cultivator between the rows of a few acres of standing corn-stalks, and sowed wheat broadcast, and then left it unharrowed. He also sowed wheat upon some

24 acres of corn land, after cutting the stalks and carefully preparing the soil, and harrowed the grain in. At the present time the wheat upon the few acres where the corn-stalks stand is looking green and thrifty, but upon the 24 acres of carefully prepared soil the wheat is for the most part winter killed. The corn-stalks held the snow and protected the plant, and Mr. Nolle will probably get a crop of wheat where he little expected it.—Wamego Agriculturist.

We presume the farmers think they know more about farming than the general average editor, which is a fact in many respects; but when an editor rides through the country and sees farming implements lying out in the fields and along the roadside just where they were last used four or five months before, without any shelter, he knows that it is not economy; that it is a fearful waste of hard-earned money and a piece of criminal carelessness to the farmer himself. Just why farmers are so careless with their machinery has always been a mystery to us; the most of them are economical in other respects. A few dollars' worth of lumber put in good sheds for sheltering machinery would save the farmer thousands of dollars, worth of wasted machinery annually.—Harper Sentinel.

A new confidence game is now being played upon the farmers. The geniuses working the new "racket" have realized large sums, undoubtedly. A chap in clerical broadcloth and white choker enters a farm-house and asks for lodging or dinner, as the case may be. During his stay, he announces "himself to be a traveling Bible distributor in the service of a religious institution, and generally goes so far as to present the family a handsome Bible from a well-filled valise. He is careful to say that his society requires its distributing members to pay their own way, and exhibits vouchers therefor. After partaking of the good folks' hospitality, he prepares to leave, and asks for his bill. He is generally told no charges are made, but he calls attention to the "rules," and insists on paying twenty-five cents per meal. Then he mildly requests a receipt on his blank form, "as a voucher you know," and gets the farmer to sign it. In ninety days there is a notice from a neighboring bank to a pious farmer to call and pay the note for \$156.25, which it bought, and bears the farmer's signature.—Exchange.

We have not, we believe, a single organization in this county intended strictly to advance the interests of the farmers. A majority of our dealers have pools, teachers have institutes and associations, loan agents and banks have "rates," horsemen have a fair association,—but our farmers have not a single association either for their protection or the dissemination of knowledge among themselves gained by their number by practical experience. The best thing the farmers in this county could do would be to organize an association and hold occasional institutes, at which times they could recite their experiences and observations in their methods of work; and thus much valuable time and labor would be yearly saved to the farmers by avoiding bad methods. Another thing in this country that is a source of profit to the farmers is stock-raising. In a farmers' institute could be discussed the best breeds and crosses, the best treatment, food and care to keep animals in order and free from disease. In a few counties in the State organizations have been effected, and these institutes are found to be a great source of profit to the farmer. Investigation and experience could be carried on under the direction of the association, by its members, and the results put before an institute and thoroughly discussed. Will not some farmer make a move in this direction, and others join in? Appoint some Saturday afternoon as an afternoon to organize, and then have a good organization.—Clay Center Argus.

# THE INDUSTRIALIST.

SATURDAY, MARCH 6, 1886.

EDITED BY THE FACULTY.  
E. M. SHELTON, MANAGING EDITOR.

## American Pomological Society.

From the recently-issued proceedings of this Society for 1885, the twentieth session, we have made the following abstracts of papers or discussions which may be of interest to those who do not receive the volume.

The principal officers remain the same with the exception of secretary, in which office Charles W. Garfield, of Michigan, succeeds Professor Beal.

In a paper upon the grape mildews, Professor Riley summarizes in effect as follows: Of the two mildews prevalent in this country upon the grape-vine, the *Uncinula*, or powdery mildew, which develops upon the upper side of the leaf, in dry atmosphere, may be readily controlled by the use of sulphur; while the *Peronospora*, or downy grape-vine mildew, which develops in the leaf and fruit in moist or wet weather, may be checked by the use of a spray of dilute kerosene emulsion, mixed with a small amount of carbolic acid, or more readily by a mixture of slacked lime or copper sulphate, applied as a preventive in June. The sulphur application recommended for the *Uncinula* has no effect upon the *Peronospora*.

Touching the influence of pollen upon form, size, color and flavor of the fruit, Professor Lazenby recounted his experiments in cross-fertilizing strawberries: in those of 1884 the effect of the foreign pollen showed itself very distinctly, while, in the experiments carried on in 1885, no marked results were obtained. Mr. Crawford, of Ohio, sums up his experience in the statement that he can perceive no influence of the pollen on the fruit in crossed sorts. Professor Burrill arrives at a similar conclusion from his field experiments, which, however, can hardly be taken as conclusive, as he explains, from the imperfect isolation of the test plantings. A. S. Fuller, on the other hand, takes no uncertain stand on this question, claiming that not only does foreign pollen influence the characters of the fruit of the strawberry but even other parts of the fertilized plant. Professor Budd is convinced of the possibility of modifying very materially the fruit of a pistillate strawberry by selection of the fertilizing plant; and Parker Earle, one of the most successful market-growers of this fruit adheres to this theory to the extent of planting for market in accordance with it.

We gather from the discussion upon the varieties of the strawberry for profitable planting that the Crescent and Sharpless have the most advocates, without regard to locality, though in the catalogue of fruits the Wilson still gets the greatest number of double stars.

Some points made by that experienced market-grower of fruits, Parker Earle, though they will be novel to some western shippers, may be also useful. He ships fruits even considerable distances in ventilated cars by fast freight in preference to express, on account of the injury resulting from the hurried rough handling of the expressmen, and from hot, unventilated cars in which they are carried. For strawberries, refrigerator cars are preferred, and the twenty-four

box crate of shallow square "quart" boxes is the preferred package. No crate should be used whose form does not readily show which side should be placed up, or in other words, which is top and which is bottom. Raspberries, good enough to ship at all, should be shipped in pint boxes, five inches square and one and one fourth deep. "Any raspberry that will carry in a quart box is too hard and too poor, and should never be grown." Peaches are best shipped in oblong flat baskets, 15x8x5 inches, such as are often used for grapes and a patent ventilated "ripe fruit carrier" on the plan of the common egg-crate, is spoken of as a very successful carrier for ripe peaches. However, we here have very little concern as to peach packages this year.

The subject of pear blight, so long the theme of wild theorizing by self-styled "practical" writers, receives a full and, in our opinion, conclusive explanation at the hand of Professor Arthur, of the New York Experiment Station, whose work confirms fully the main conclusions arrived at by Professor Burrill, of Illinois, made six years earlier, besides adding much to our knowledge of this subject. Professor Arthur's experiments may be summarized as follows:—

He found that the appearance of blight invariably followed, in about two weeks, the inoculation of the softer portion of a healthy growing branch, by means of a pin, transferring a small portion of the exudation from a diseased tree; while similar branches, pricked with a clean pin, remained uninjured. The inoculation of an older branch was equally certain to be followed by the disease when the milky fluid, made by cutting up a portion of diseased wood in clean water, was used as a means of communicating it; while in any case the disease could be certainly transferred if the young fruit were selected as the point of inoculation. Branches diseased by inoculation, and allowed to remain over winter, showed the next year progressive blighting, noticed in the natural appearance of the disease. Experiments to discover the ordinary mode of the spread of the disease seem to show that the germs will not find entrance through the uninjured roots of a healthy tree, and that the germs are not commonly at least, carried through the air from tree to tree. It was found by cultivation of the germs of the disease in various media, that they would multiply rapidly in any solution containing starch or some analogous substance, and even in hay-tea, or in barn-yard manure. Professor Arthur then assumes that the exudations of diseased trees, loaded with germs, are washed down, and from this seedling the germ may multiply in the soil, whence, in the dust blown upon the tree in a dry time, or even in the free germs carried into the air by evaporation from the soil, may be found the explanation of the spread of the disease, premising that these agencies are likely to operate in the early growing period only, while yet the growth consists of flowers or tender opening buds.

In confirmation of Professor Burrill's logical assumption that bacteria are the active cause of pear blight, and not simply an accompaniment to a specific poison, as urged by some in the controversy, Professor Arthur shows that these germs will as certainly produce blight after they have passed through numerous cultures in starchy fluids as if they were newly taken from a diseased tree; while

one would scarcely hazard the assumption that the "virus" would expand in culture equally with the multiplication of the germs. In another experiment performed by filtering out the germs from a portion of fluid prepared by culture, and inoculating healthy trees with this juice, and at the same time others with a portion of the same unfiltered, blight always followed the use of the unfiltered, and never that of the filtered liquid. Further, it was shown by repeated experiments that other bacteria than the *Micrococcus amylovorus* of pear blight were incapable of producing the appearance of blight.

Certain changes in nomenclature, new or old, so far as they refer to our more commonly quoted varieties, are noted in the table appended.

Nurserymen could do much toward uniformity and simplicity of nomenclature if they would see that their catalogues conform with catalogues of this Society, in these respects.—*Prof. Popenoe.*

Adopted Name. Former name.

### APPLES.

American Summer.	Am. Summer Pearmain.
Carolina June.	Car. Red June.
Chenango.	Chenango Strawb'y.
Cooper's Early.	Cooper's E'ry White
Oldenburg.	Duchess of Oldenburg.
Hubbardston.	Hubbardston Non-such.
Tompkins King.	King of Tompkins County.
Kirkbridge.	Kirkbridge White.

### GOOSEBERRIES.

Smith's.	Smith's Improved.
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### GRAPES.

Hartford.	Hartford Prolific.
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### PEACIES.

Amsden.	Amsden's June.
Beatrice.	Early Beatrice.
Louise.	Early Louise.
Rivers.	Early Rivers.
Tillotson.	Early Tillotson.

### PEARS.

In general, the prefix or family names Beurre, Doyenne, Duchesse, etc., are dropped with the prepositions following. Further changes are as follows:—

Vicar.	Vicar of Winkfield.
Margaret.	Petite Marguerite.
Summer Doyenne.	Doyenne d'Ete.

### STRAWBERRIES.

Cumberland.	Cumberl'd Triumph.
Hovey.	Hovey's Seedling.
Monarch.	Monarch of the West
Wilder.	President Wilder.
Wilson.	Wilson's Albany.

### Timber Famine.

In "Open Letters" in the current *Century* Mr. S. W. Powell presents some interesting figures bearing upon the question of forestry. Our forest products now amount to \$800,000,000 per annum, which means that our forests, once among the richest in the world, are being used up and wasted at such a rate that a famine is only a question of a very short time. Our great stores of white pine are being rapidly exhausted, and when this is complete, the rest will follow as rapidly. All this means a timber famine unless protective measures are adopted.

A timber famine means a money loss to the country of far greater amount than would represent ten consecutive failures of any other crop. It means the derangement or total ruin of a large number of important industries which are dependent on the forest for their active existences. It means a serious injury to all building interests, the manufacture of wooden articles,—as wagons,

furniture, musical instruments, agricultural implements, carriages, etc.,—besides injury to those industries which are not dependent upon forest products for the whole of their raw material,—as the tanning of leather, etc. In fact, almost every thing we use in every-day life is more or less dependent upon the forest for its manufacture; and a forest famine would be one of the worst possible calamities, while any considerable increase in price of forest products, caused by scarcity, would be serious enough, in all probability, to produce a debilitating influence on manufactures, and be the cause of much real suffering.

With the knowledge that the forest products have a greater money value than any other; that from thirty to one hundred years are necessary to grow a forest to maturity; and that forests have a very great indirect value in the prevention of devastating floods, the distribution of rainfall, the influence exerted upon climate,—which is of direct benefit to agriculture,—is not this spring a good time to consider the advisability of putting out a few trees? It is estimated by a good authority on forestry, that the young man of thirty years who plants a few acres to black walnuts now lays the foundation for a good income or an independent fortune, according to acreage planted, to be enjoyed "without work" in his older days.—*Supt. Graham.*

### Entering College.

Applicants for admission at the beginning of the year, in September, must be at least fourteen years of age, and able to pass a satisfactory examination in reading, writing, arithmetic including percentage and interest, geography and elements of English grammar. Those applying later in the term must show sufficient advancement to enter the classes already in progress. Every effort should be made to begin with the first of the term, in order to advance with the class from the first.

Applicants of mature age who, for lack of advantages, are unable to pass the full examination may be received on special conditions.

Applicants for advanced standing in the course must pass examination in all the previous studies of the class to be entered; but, if they have pursued such studies in other institutions of similar rank, they may receive credit for their standing in those institutions upon presenting a certificate from the proper officer, showing that their course has been equivalent to that given here.

### Required Industrials.

The need of general training of youth to some degree of dexterity in the every-day work of life, is recognized everywhere nowadays. In this College, each young man spends time enough in the Carpenter Shop to learn how to use the common tools with ease, and do plain work with some idea of exactness. He also gives hours enough to farm and garden work to have clear notions of what they involve, and interest in the success or failure of varieties and methods. Each finds his critical spirit in such matters strengthened by test of his own abilities and judgment in everyday experience. These occupy one term of each year of the course prior to the fourth.

The young women find a similar provision for their familiarity with every-day affairs in the requirement of one hour a day for one term of the first year, in sewing adapted to their advancement, and in the practice in cooking and dairying required during two terms of the second year. Nimble fingers with the needle may not serve the same purposes as before the sewing-machine snatched the long seams out of the hands of the women; but the ready judgment and taste that make the beauty and comfort of dress are gained only by handling, with careful instruction, the tools that are employed about dress. In the same way, the tact of house-keeping comes by practice under tuition far more readily than under the sharp raps of chagrin and dyspepsia from sour bread, heavy cake and badly-cooked meats.

The required industrials of the course will have served their purpose well in such ways, even if they do not pave the way to skill in these universal arts.

## THE INDUSTRIALIST.

SATURDAY, MARCH 6, 1886.

### CALENDAR.

1885-86.

FALL TERM.—Sept. 10th to Dec. 18th.  
WINTER TERM.—Jan. 5th to Mar. 26th.  
SPRING TERM.—Mar. 29th to June 9th.  
June 9th, Commencement.

Persons receiving the "Industrialist" need have no fear of bills to come; for the paper always stops with the expiration of subscriptions, unless continued by favor of a friend or of the College.

### BONDS WANTED.

School District bonds issued on College blanks will bring their par value at once. Address T. P. Moore, Holton, Jackson Co., the College Loan Commissioner.

A handsome dressed stone pavement is being laid by Mr. Harding in the principal alleys of the new barn.

Prof. Walters has recently completed a neat sketch of the College barns, with floor plans of the same. These are to be engraved for use in the forthcoming report of the Farm Department.

That impulsive knight of the quill, Bro. Tilton, of the *WaKeeney World*, writes earnestly for a Farmers' Institute to be held at an early day at WaKeeney. We hope that the Faculty will see its way clear to grant the request.

Last week we shipped a young Berkshire boar to a gentleman residing in Washington county. On the way, by some accident not yet explained, the pig escaped from the moving train somewhere near Wakefield, and for a number of days was at large. We have not learned whether the pig has been recaptured.

With the object of ascertaining and putting on record how our dozen or more sorts of experimental wheats have stood the winter, we looked over the plats on Wednesday, notebook in hand. Our findings may be stated in a single line: all have suffered alike apparently, scarcely a living plant remaining in any of the plats.

The twentieth annual report of the Sheffield Scientific School, at New Haven, Connecticut, received this week, makes an excellent showing as to attendance and wide repute. Twenty-six States and countries are represented among its 256 students. Is it because Kansas students are so well provided for at home that Kansas has no representatives there?

The young imported Cruickshank bull, our recent purchase, whose pedigree is elsewhere given, reached Linwood on Thursday, and doubtless will reach his new home today. Col. Harris, than whom there is no better judge in the country, writes, after taking a good look at him: "I congratulate you on your purchase. He is a superb calf, and a year from now will astonish the natives."

The Manhattan city fathers seem to have "backed water" in the cow business, having recently passed an ordinance permitting cows to run at large between May 1st and November 1st. The people who want to set out trees and to improve their grounds, the farmers who trade in Manhattan, and even the owners of cattle themselves, ought to unite in a protest against this action of the city council.

Our hasty trip to Canada last week satisfied us that our Kansas climate, with all its flickleness and numerous lapses of virtue, will yet do to brag on. We left Kansas truly a land of warmth and sunshine; in Chicago it was raw and cold, and dabs of snow were falling; the trip across northern Indiana and Michigan was made in a blinding snow storm; while in Ontario, fifty miles northeast of Toronto, the roads were almost universally blocked with snow drifts four to ten feet high.

The twenty-third annual report of the Massachusetts Agricultural College, just received, shows a total attendance of 121 students, including the graduates of 1885, eleven in number. The senior class numbers thirteen. The list of graduates, arranged in alphabetical order, shows a very considerable number of farmers and horticulturists among the 200. More than one third work directly upon the soil, and half as many more are engaged in callings directly promotive of a better agriculture.

Every day makes more plain the thoroughly destructive effects of the late cold weather

upon the growing wheat. The entire crop upon the College Farm, except the narrow belt protected by fences, seems to be dead beyond all hope of resuscitation. The field is as sear and yellow in appearance as it would have been had it been sowed to spring oats instead of winter wheat. Not one per cent of the plants which six weeks ago were in a condition of robust health are now alive.

The interesting experiment made during the past month, in which six milking cows were given on alternate days water warmed to the temperature of 90° Fahr., receiving during the remaining days water as usual directly from the well, shows with a surprising uniformity a gain for the two milkings immediately following the drink of warm water,—a gain in the amount of milk varying from ten to forty per cent. From this experiment and a half dozen others which we have made upon the College farm, we are strongly of the opinion that if warmth can be got into an animal and kept about him by artificial or other means, the question of getting the most out of the animal for food consumed is reduced to its simplest form.

While in Canada last week, we visited the well-known Shorthorn herds of Jas. I. Davidson, of Balsam, and John Dryden, M. P., of Brooklin, and in the case of both herds had the satisfaction of seeing large numbers of animals of the breeding of Mr. Amos Cruickshank, the proprietor of the famous Sittyton herd, or the near descendants of animals bred at Sittyton. We were quite prepared to find these herds excellent in those substantial qualities which we always associate with easy and rapid beef-making, but were not expecting to see so much of refinement and show-yard qualities as both herds show. We succeeded in purchasing of Mr. Davidson for this College the youngster whose pedigree is given below. It will be noticed that this pedigree embraces a half dozen of the best bulls and cows ever used by Mr. Cruickshank. Of the individual qualities of our purchase, it is sufficient to say that Mr. Davidson, who has imported all of the Cruickshank cattle introduced in recent years, stated repeatedly in our presence that Highland Chieftain was the best calf that he had ever imported.

HIGHLAND CHIEFTAIN; red; calved March 23rd, 1885; bred by A. Cruickshank, Sittyton, Scotland; imported by Jas. I. Davidson.

Sire, Dunblane (47792)  
1 dam, Violet Spray, by Roan Gauntlet (35284)  
2 " Russian Violet,  
by Scotland's Pride (25100)  
3 " Red violet, by Allen.....(21772)  
4 " Violet, by Lord Bathurst.....(13173)  
5 " Roseate, by Matadore.....(11800)  
6 " China Rose, by Hudson.....(9228)  
7 " Carmine Rose, by Fairfax Royal.....(6987)  
8 " Red Rose, by Inkhorn.....(6091)  
9 " Moss Rose, by Grazier.....(1085)  
10 " Cicely, by Sampson.....(1560)  
11 " Marion, by Wallace.....(1560)

### COLLEGE SOCIETIES.

ALPHA BETA.—Chartered, December 26th, 1870. Meets in the Society Hall every Friday at 2:30 P. M. Ladies admitted. New students cordially invited to attend.

A. M. GREEN, President.

MISS IDA QUINBY, Secretary.

WEBSTER.—Chartered, January, 1871. Meets in Society Hall every Saturday evening. Visitors, especially students, always welcome,

D. G. ROBERTSON, President.

F. H. AVERY, Secretary.

SCIENTIFIC CLUB.—Meets on first Friday evening of each month. Composed of members of the Faculty and advanced students. Devoted to the improvement of its members in general scientific knowledge, and the encouragement of original investigations.

PROF. WALTERS, President.

MRS. KEDZIE, Secretary.

HAMILTON.—Chartered January 29th, 1885. Meets every Saturday evening. Admits gentlemen only. Visitors always welcome.

G. W. WATERS, President.

C. F. GOSS, Secretary.

The Y. M. C. A. meets at 3:30 P. M. Sunday.

D. G. ROBERTSON, President.

The Y. W. C. A. meets Thursday afternoon. F. HENRIETTA WILLARD, President. NELLIE COTTRELL, Secretary.

### REPORTS.

SOCIETY HALL, Feb. 27th, 1886.

Society called to order by President Waters. Roll-call found a large number of members present, despite the inclemency of the weather. Prayer was offered by E. H. Perry. The regular programme opened with debate upon the question, "Resolved, That the administration of Andrew Jackson resulted in injury to the United States." C. F. Goss and F. Dinsmore represented the affirmative, and Messrs.

Owen and Holler the negative. After an unusually interesting discussion, the judges decided that the negative presented the best argument. Recess. Owing to the absence of Mr. Trant, who was due for a declamation, Mr. Newman was asked to occupy the time, in which he gave the Society some very good ideas on thought. Next in order was an essay, by H. H. Meyers, upon the life of Benjamin Franklin. Mr. Brown then declaimed. Following this was a vocal solo by S. L. Ellis, entitled, "Cling to those who cling to you." Extemporaneous speaking was highly enjoyed by all.

ALE.

SOCIETY HALL, Feb. 27th, 1886.

The Websters came to order at the call of President Robertson. Roll-call showed that a large number of the members were present in spite of the unfavorable condition of the weather. Prayer by A. A. Sebring, after which the following programme was presented: Debate,—"Resolved, That a private school is more effective than a public school." A. W. Murray and M. Hulett argued the affirmative, and A. A. Sebring and John Korkhill the negative. Judges decided in favor of the negative; essay by F. A. Thompson; declamation, H. W. Avery; essay, L. G. Myers; declamation, L. H. Simmons; Reporter by E. A. Martin. Under proposition for membership, Messrs. N. S. Morse and E. E. Nichols were proposed. Owing to the absence of some of the members on duty, the exercises were short. To make up this deficiency, D. G. Fairchild was called on to furnish programme for the rest of the evening. Obedient to his suggestion, the Society resolved itself into a spelling school for the remainder of the evening, during which time there was much "good-fellowship" exhibited.

TEDDY.

SOCIETY HALL, March 5th, 1886.

The Alpha Betas came to order at call of President Green. The first exercise of the session was music,—a solo by Ada Little, F. H. Willard playing the accompaniment. D. W. Working offered prayer. R. D. Whaley favored us with a declamation, entitled "On the Shores of Tennessee." This was well rendered. Harvey Dunn read a well-written essay on Peru. In the debate which followed, the question, "Resolved, That foreigners should be required to pass examination in the laws and history of our country before being allowed the right of citizenship," was discussed on the affirmative by H. A. Platt and J. G. Harbord, and on the negative by W. E. Whaley and E. O. Sisson. The judges decided in favor of the negative. The debate was good—a credit to those taking part in it. The Society then listened to an interesting and well-written *Gleaner*, presented by Ina Turner. After recess, Misses Ida Quinby and Ada Little and H. A. Platt sang a beautiful trio, Tracy Wikander accompanying. Then came general speaking on the question previously debated. Under the order of business, motions were passed that the roll be called at the close, as well as at the beginning, of each session, and that the names of those members absent at both roll-calls be read the following week just before the order of installation of officers.

C.

### Grounds and Buildings.

The farms, with the stock, orchards, gardens, vineyards, forestry and ornamental grounds, are used for experiment and illustration. All that is not strictly experimental is managed with a view to highest economy and profit.

On the larger of the farms, upon an elevation at the western limits of the city of Manhattan, and facing toward the city, are the College buildings. All are of the famed Manhattan limestone, and surrounded by pleasantly-arranged and planted grounds.

College, 130 by 250 feet in extreme dimensions, arranged in three distinct structures, with connecting corridors. This building contains in its two stories and basement, offices, cloak-rooms, studies, chapel, library, reading room, model kitchen and dairy, sewing rooms, society rooms and ten class rooms.

Chemical Laboratory, one story, 36 by 99 and 46 by 75 feet of floor space, in form of a cross. It contains eight rooms, occupied by the Department of Chemistry and Mineralogy.

Mechanics' Hall, 39 by 103 feet, of two stories, occupied by the Carpenter shop and finishing room, Telegraph and Printing offices, and Music rooms.

Horticultural Hall, 32 by 80 feet, one story and cellar, having cabinet room, class room, work room and storage, with greenhouse attached.

Two stone dwellings, occupied by the President and the Professor of Agriculture.

Armory Hall, 46 by 96 feet, and two stories.

This building, which has served many purposes, is now to be fitted for armory and drill

room below, and for class room, laboratory and museum of the Department of Natural History.

The barn is of stone, 48 by 96 feet, with side-hill basement stables, granary, tool-room, etc. The blacksmith shop, piggery, implement shed, and various out-buildings, are of wood.

### Objects.

This College now accomplishes the objects of its endowment in several ways.

First, it gives a substantial education to men and women. Such general information and discipline of mind and character as help to make intelligent and useful citizens are offered in all departments, while the students are kept in sympathy with the callings of the people.

Second, it teaches the sciences applied to the various industries of farm, shops and home. Chemistry, botany, entomology, zoölogy and mechanics are made prominent means of education to quick observation and accurate judgment. Careful study of the minerals, plants and animals themselves illustrates and fixes the daily lesson. At the same time, lessons in agriculture and horticulture show the application of science; and both are enforced by actual experiment.

Third, it trains in the elements of the arts themselves, and imparts such skill as to make the hands ready instruments of thoughtful brains. The drill of the shops, gardens, farm and household departments is made a part of a general education to usefulness, and insures a means of living to all who make good use of it. At the same time, it preserves habits of industry and manual exertion, and cultivates a taste for rural and domestic pursuits.

Fourth, it strives to increase our experimental knowledge of agriculture and horticulture. So far as means and circumstances permit, experiments are undertaken with a view to more definite results than ordinary experience can give. By this method the students themselves are trained to a more accurate observation and judgment in these practical tests of principles in farming.

Fifth, it seeks to disseminate such practical truths as have stood the test of scientific inquiry. For this purpose it publishes the *INDUSTRIALIST*; and its officers share in debates and consultations of farmers and horticulturists throughout the State. Each winter a series of six Farmers' Institutes is held in as many different counties of the State. In these the Faculty share with the people in lectures, essays and discussions upon topics of most interest to farmers.

### MANHATTAN CARDS.

George Firestone, G. Livery, Feed and Sale stable. East end of Poyntz Avenue.

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Burgoyne's, Photograph Gallery. Established, 1859. Opposite Purcell's Bank.

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Fox's Book Store. COLLEGE TEXT-BOOKS, School Stationery, Pencils, Ink, Scratch-books, etc., etc. Manhattan, Kansas.

Manhattan Clothing House. Best goods and best prices. Boys, come and see us, opposite Purcell's. LEMMON & KOLLER.

Barber Shop and Bath Rooms. In basement room opposite Purcell's. This is the place to get a good easy shave, a first-class hair cut, and a good, clean bath. Satisfaction guaranteed. Don't forget the place, but give me a call and be convinced. P. C. HOSTRUP, Proprietor.

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Manhattan Bank. E. B. Purcell, banker. J. W. Webb, cashier. A general banking business transacted. Bills of Exchange issued on all principal cities and towns of Europe. All collections have personal, faithful and prompt attention of our attorneys. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

E. B. Purcell, E. Corner of Poyntz Avenue and Second St., has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, &c., &c., &c. Goods delivered in all parts of the city, and at the College, free of charge.

### Kansas Educational Notes.

PROF. J. D. WALTERS.

A telegram from Hon. Lewis Hanback last week informed Gus Burke that he had received an appointment to a West Point cadetship, there being a vacancy from this district caused by the failure of young Culp, appointed by Mr. Hanback a year or two ago.—*Osborne Farmer*.

Counties that wish to establish county high schools under the new law should call their elections not later than April or May, so that arrangements can be completed prior to the commencement of the school year, which is in September.—*Atchison Champion*.

The high school of Washington is preparing an elocutionary entertainment to be given soon for the purpose of raising funds for the library. An entertainment given a short time ago made it possible to buy fifty volumes of general literature and reference books, and a twenty-dollar chemical laboratory.

In the case of the State vs. G. W. Walker, charged with cruelly treating two of his pupils by denying them entrance to the school-house because they were tardy on a very cold morning, which was tried at the city hall Wednesday, the jury found a verdict of guilty and imposed a fine of \$10 and cost.—*Baxter Springs News*.

The report of the State Superintendent of Public Instruction, just issued, shows the total number of school children in the State between the ages of 5 and 21 years to be 461,044, and the total amount of public school money apportioned to the several counties \$93,638.45; amount per capita, \$0.42. Shawnee county heads the list with 14,505 school children, receiving an apportionment from the public fund of \$6,092.10.

Three years ago seventy-five Sioux and Modoc children were sent to the Normal Labor Institute, near Wabash, Ind., to be educated. When they arrived at the school they were in a barbarous condition, but in the interval they have become proficient in English, geography, arithmetic and other studies, and acquired a knowledge of farming. Forty of them have been returned to the Indian Territory. The boys will be put to farming, and the girls be given positions as teachers in the Indian schools.—*Leavenworth Times*.

The new law passed at the special session of the Legislature, and which went into effect February 13th, provides that no sales of school land can be made in any of the new counties until they have been organized for a period of three years. This puts a stop to the heavy sales that have been in progress recently, by which speculators were able to obtain large bodies of land in this county. The Attorney General holds that in all cases of school lands advertised for sale subsequent to February 13, the sale, if made, would be illegal, and the Auditor of the State has notified the county clerks and treasurers by telegraph to withdraw all lands from the market.

We have an excellent library, nearly free from debt, and the ladies in charge contemplate opening a free reading room as soon as circumstances will permit. If this worthy enterprise is encouraged, newspapers placed on file, harmless games provided and proper discipline observed, the library can be made the resort for youth who now frequent the billiard room, many heart-breakings will be prevented, money will be placed in the pockets of individuals and the community by the decrease in crime and its consequences. The primary school of vice will lose its youthful pupils, and an influence be thrown around them which will make of them respected, honored citizens.—*Canner City Record*.

The teachers of the Eldorado schools are making a concerted effort to do some useful work in language. Less attention is paid to diagramming of sentences and more to the actual use of language in writing and composition. It is considered more essential to be able to construct a sentence than to take one to pieces. Teach a girl to make a dress by picking out the stitches, or a boy to build a house by taking one to pieces! Yet that is just the way many teachers attempt to teach the correct use of language. These pupils as a rule can tell you all about the parts of a sentence, and yet cannot write half a dozen lines correctly. They pay no attention to capital letters

or to punctuation. They cannot write a letter that is fit for exhibition; and yet the ability to do this is just what a boy needs. How many boys or girls make any use of diagramming or parsing of sentences after they leave school? Only those who teach. The great mass do the work in composition. Then give them more drill in composition.—*Eldorado Republican*.

### Educational Matters in Congress.

A bill has been introduced in Congress providing for the establishment of an educational fund by setting apart each year the receipts from the sale of public lands over and above expenses of the land office, together with one half the amount from railroad companies. Under the provisions of the Thurman act, such fund is to be portioned to the several States and Territories and the District of Columbia, upon the basis of population between the ages of five and twenty years, and the interest on the sum apportioned to each State and Territory to be paid to the proper officers each year for educational purposes.

The educational bill, which passed the Senate two weeks ago, proposes to give \$77,000,000 to the States for schools, in proportion to their illiteracy. It is to be disbursed by State officers. The bulk of the money will, of course, go to the Southern States. Senator Morgan, of Alabama, made one of the strongest State's rights speeches against the bill, although Alabama would get \$5,000,000 as her portion. He would not have done this, probably, had he not been sure the bill would pass in spite of his opposition, as it did in the Senate of last Congress.

Senator Plumb, of Kansas, who was also opposed to the bill, said Mr. Blair was hasty and petulant in his opposition to having his pet measure amended. Mr. Plumb did not regard the bill in the same light as the sacred bull of Burmah, which was not to be touched by irreverent hands. He denied that it had ever been approved by a Republican caucus; but even if it had, although a Republican caucus was a very immaculate body, he held that the measure might be capable of amendment notwithstanding.

Senator Ingalls's National University bill has not been before the Senate as yet.

The House committee on agriculture have agreed to report favorably the bill to establish experimental stations in connection with agricultural colleges.

### Industrial Arts.

*Industrial Arts.*—The training in these departments is designed to be systematic and complete in each, so that any student, following a single line diligently through a whole four-years' course, gains the essentials of a trade and a reasonable degree of skill. Those who wish only a general acquaintance with the arts can take shorter courses in several of them; but all are to select with definite purpose. In the established course, young men are required to take the regular term in the carpenter shop and on the farm and gardens whatever the industrial chosen. Young women are required to take one term in the kitchen laboratory and one in the dairy, though other industrials may occupy their course.

*Dairying.*—During the spring term, daily instruction and practice in the different branches of dairying is given the ladies of the second year by the Instructor in Household Economy. A dairy well equipped in modern appliances for the manufacture of butter and cheese, is connected with the Department of Household Economy. Here the regular dairy work is supplemented by a short course of lectures intended to explain the best practices in the art of butter and cheese making, and to give the reason therefor. The following topics cover, in the main, the instruction given the class: Influence affecting the quality and quantity of milk; butter making; the household and factory system of cheese making. Creameries: "deep" and "shallow" setting system; packing and preserving butter.

*Agriculture and Horticulture* are required of young men as industrials during one term of the second year and one term of the third year. In these, practice is made to illustrate and emphasize the teaching, and covers essentially the same ground.

*Carpentry, etc.*—On entering the shops, all take the same first lessons in sawing, planing and dressing lumber, making mortises, tenons and joints, and in general use and care of tools. Later, one who chooses a trade is provided with work directly in the line chosen; while the farmer's course provides for general training in a great variety of operations,

rather for ingenuity than skill. In the ful-course of a carpenter, special instructions are given in the whole range of work, from framing to stair building. Carpentry is required of young men during one term of the first year.

In iron work, instruction is given in ordinary work, —forging, filing, tempering, etc.

*Printing.*—Two courses are pursued in this art. In one the student is taught the implements or tools employed in typography, and how to use them; composition; imposition; correcting proof; technical terms; presses and their workings; and the general duties of a first-class workman. Everyone is encouraged in studying the rise and progress of printing and related arts. Habits of accuracy and thoroughness are required in order to advancement. The second course of lessons, alternating with those of the first, embraces instruction in spelling, capitalization, syllabication, punctuation, proof-reading, preparation and criticism of essays, and such other work as will make the student accurate and expert in language. Wilson's Punctuation is the text-book; but much of the instruction is oral,—such as grows out of the every-day experience of the office.

Admirable drill is furnished by the INDUSTRIALIST to all, but especially to those who take the full course. The printing which the departments of the College require gives to the advanced student a fair knowledge of the principles and practice of job work.

*Telegraphy.*—The course of training involves for beginners the characters that compose the alphabet, and combinations of these characters into words and sentences—attention being paid to spelling and to short and precise expressions in messages,—abbreviations, signals, forms of messages, train orders, reports etc. To the more advanced is given regular line business, as press reports, messages, cipher messages, and orders in all forms used by prominent telegraph companies, together with the necessary book-keeping, upon exact copies of the blanks in actual use, thus giving the students an understanding of the work of an operator. A portion of the time is devoted to instruction in the management of lines, batteries, instruments, etc. The elementary principles of electricity, magnetism and electro-magnetism, involved in telegraphy, are taught and illustrated by experiments. The more recent inventions related to the art are discussed and explained. Pope's Handbook of the Telegraph is used as a text-book.

*Sewing.*—Young ladies are taught in all ordinary forms of sewing with needle and machine, and in cutting, fitting and trimming dresses and other garments. A straight-line system of cutting and fitting is taught, and systems are furnished to students at wholesale rates. They may furnish materials, and work for their own advantage during the hour of practice, under the direction of the Superintendent.

*Instrumental Music.*—Provision is made for the teaching of music upon instruments of all sorts. A full course upon the organ or piano extends over four years, including harmony and composition; but students may take lessons for a single term if they choose. The College furnishes the instruments for daily practice, but the instruction is paid for at usual rates.

### Means of Illustration.

Two farms of 171 and 100 acres, for the most part surrounded by durable stone walls, subdivided into fields of variable size to suit the system of management.

A large variety of standard experimental grains in cultivation in fields and experimental plats.

A well-planned barn for grain, hay, horses and cattle; and a piggery of six pens, with separate yards.

Shorthorn, Aberdeen-Angus, Galloway and Jersey cattle; Berkshire, Poland-China, Jersey Red and Essex swine.

Farm implements of improved patterns.

Collections of grains, grasses and forage plants.

Orchards, containing 275 varieties of apples, 80 of peaches, 50 of pears, 16 of plums, 20 of cherries and 10 of apricots.

Small-fruit garden, with 200 varieties of small fruits, including blackberries, raspberries, gooseberries, currants and strawberries; and vineyard with 100 varieties of grapes.

Forest plantation of twelve acres, containing twenty varieties of from ten to fifteen years' growth.

Ornamental grounds, set with a variety of evergreen and deciduous trees. Sample rows, containing 150 varieties of ornamental and useful shrubs and trees, labeled.

Vegetable garden, with hot-beds and cold-frames and experimental beds. Practice rows for students' budding, grafting, cultivating and pruning.

A well-planned and furnished greenhouse of three rooms, stocked with a collection of native and exotic plants.

Chemical laboratory, with eight rooms, fitted with tables and apparatus for a class of eighty students; also, physical apparatus, meteorological instruments, and apparatus for advanced chemical work and assaying.

Models, plaster casts and patterns for drawing, and charts for illustration.

Botanical museum, containing a good herbarium, fairly representing the flora of the United States; a collection of native and foreign woods, seeds, nuts, dry fruits; a collection of abnormal wood growths.

Mineral and geological cabinets, including collections of Professor Mudge; a representative collection of the ores of Colorado, New Mexico and Arizona.

Zoological museum, containing a typical collection of birds and mammals, mounted; a cabinet of bird skins, eggs and nests; a good collection of reptiles and fishes in alcohol; a large series of land, fresh water and marine shells; a good representation of the insects of this locality, and a collection of invertebrates in alcohol.

Mathematical instruments.—compasses, transits, levels, chains, for field work.

Carpenter shop, with separate benches and lathes, mortising machine, and general chest of tools for fine work.

Shop for iron work, with forges, vises, drill, etc.

Printing office, with twenty-five pairs of cases, a good assortment of body and job type, a Country Babcock press, a quarto jobber, and a paper cutter.

Telegraph office, with six miles of line, connecting thirty-two branch offices, and as many instruments, and a Remington type-writer.

Sewing rooms, with five machines, models and patterns.

Kitchen laboratory, with ranges, cooking utensils, dining-room furnishings, creamery and dairy furniture.

Music rooms, with four pianos, three organs, and other instruments.

A library, carefully selected and catalogued, containing 6,000 volumes. A reading room is maintained in connection with the Library, where may be found on file forty-five of the leading literary, scientific, technical and agricultural periodicals, and several hundred newspapers, including the principal daily and county papers from all parts of the State.

Armory, containing one hundred stand of arms (breech-loading cadet rifles, calibre .45) with accoutrements.

### Earnings.

The labor of the students in the industrial departments is principally a part of their education, and is not paid for unless the student is employed—outside of required hours of labor—upon work for the profit of the College. Students are so employed upon the farm, in the gardens or the shops, and about the buildings. The labor is paid for at rates, varying with service rendered, from eight to ten cents an hour. The Superintendents strive to adjust their work to the necessities of students, and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly pay-roll for the past year ranges from \$377 to \$456.

Many students obtain work in the city or upon neighboring farms, and so pay a part of their expenses. Students employed in the shops are allowed to work somewhat for their own profit, in the manufacture of articles for sale and use. In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide by earnings outside of term-time, or from other sources, for the larger part of their expenses. The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education if he has the ability to use his chances well.

### General Course of Study.

Each student is expected to take three studies besides one hour's practice in an industrial art: and variation from this rule can be only with consent of the Faculty.

Parallel courses are offered to both sexes with such differences as their necessities seem to call for. The following gives the general scope of the two; but fuller explanations are found in the annual catalogue.

FIRST YEAR.	FALL TERM.	Arithmetic. English Analysis. Geometrical Drawing.
	WINTER TERM.	Book-keeping, Drawing. English Structure. United States History.
SPRING TERM.	FALL TERM.	Algebra. English Composition. Botany.
	WINTER TERM.	Algebra completed. Elementary Chemistry. Horticulture. 14 Lectures in Military Science.
SECOND YEAR.	FALL TERM.	Geometry. Practical Agriculture or Household Economy. Organic Chem. and Mineralogy. 12 Lectures in Military Science.
	SPRING TERM.	Geometry completed, 5 weeks. Drawing, 5 weeks. Entomology. Analytical Chemistry.
THIRD YEAR.	FALL TERM.	Trigonometry and Surveying. Physiology. General History.
	WINTER TERM.	Mechanics. Agricultural Chemistry. Rhetoric.
FOURTH YEAR.	SPRING TERM.	Civil Engineering. Drawing, (or Hygiene). Chemical Physics. English Literature.
	FALL TERM.	Agriculture or Literature. Meteorology. Psychology.
	WINTER TERM.	Logic, Deductive and Inductive Zoology. Structural Botany.
	SPRING TERM.	Geology. United States Constitution. Political Economy.

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## KANSAS STATE AGRICULTURAL COLLEGE.

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### COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner. College Lands and all business connected with their sale are in charge of the Land Agent.

Bills against the College should be presented monthly, and, when audited, are paid from the office of the Treasurer, in Manhattan.

All Payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka.

The INDUSTRIALIST may be addressed through Prof. E. M. Shelton, Managing Editor. Subscriptions are received by Supt. Geo. F. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Kellerman, chairman of the committee on Museums.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding places, etc.,—may be obtained at the office of the President or by letter.

### Farmers' Woes, and Insanity.

The Rutland (Vt.) *Herald* lately took a most gloomy view of conditions and effects of farming life in New England. The familiar statement was again repeated that the farming class yields a larger percentage of insanity than any other, and this was accounted for on the ground that the average farmer and his wife and daughters are under-nourished, grievously overworked, and much subject to anxiety and nervous stress.

"To take a New England farm and make it pay, means toil, incessant toil, early and late; physically, the farmer, and especially the farmer's wife, is often severely overworked to the extent of a broken-down nervous system. The food of the farmer is no better, not always as healthful, as the food of mechanical city workers; and the fatigue, exposure, anxiety and overwork of the average farmer is more than is ordinarily encountered by the city worker of the same intelligence," etc.

A correspondent of the *Evening Post*, which had reprinted the article, writes to that paper to say that twenty-five years of experience upon a farm, and much observation, lead a farmer's wife to very different conclusions. It is true that she writes of Connecticut, and not of Vermont, but the conditions of the same class cannot be widely different in the two communities. No doubt there is difference in ease of living among farmers; a little advantage in point of capital or intelligence or even temperament, will cause that. The insanity results, however, if they were known, would be really significant of average condition; and the popular conviction certainly is that farming life does yield more than its due proportion of insane patients.

It may be doubted whether this conviction is well founded. We have before us the latest reports of the Danvers and the Worcester Lunatic Hospitals in Massachusetts, a State which, touching both Vermont and Connecticut, has very similar conditions of climate and soil.

The males engaged in agriculture in Massachusetts amount to almost exactly 9½ per cent of the whole male population. Yet of the admissions to these two hospitals, during the last year reported, the farmers numbered less than 6 per cent of the whole number of males; while of wives or daughters of farmers, specified only in the Danvers report, the proportion was barely 3½ per cent of the females. These proportions become more significant when contrasted with the returns from other classes of society. Laborers, for instance, furnished 19 per cent of all males, and wives or daughters of laborers (reported from the Danvers Hospital only) supplied about 8½ per cent of all females; while fully 20½ per cent of the admissions of females to both hospitals were from the class of domestic servants. Finally, what may be considered most striking of all, is the fact that of the whole number (nearly 800) embraced in both reports, the proportion of patients of "no occupation" is a little more than 6 per cent for men and a little less than 6 per cent for women. The proportion of the whole population represented by each of these classes, excepting the farmers, whose number is known by the census, must be a matter of estimate; but no estimates can disturb the conclusion from these reports that the farmers and their women-folk furnish very much less than their natural proportion of insane patients.

The representation from the very small "no occupation" class, equalling that from the great agricultural division of society, calls to mind Dr. Roose's paper on "Wear and Tear of London Life," in the last *Fortnightly Review*. Dr. Roose says, on the authority of a "distinguished American physician" (whom we take to have been the late Dr. J. R. Wood), "that the number of insane is greater in a community in proportion to the political and religious freedom of the population; that

is, to the opportunity they enjoy of working out their own purposes, whether in relation to this world or the next, in the manner most agreeable to themselves. The explanation, of course, is, that in such communities the causes of insanity are always numerous and widespread." This is a lightning-flash of insight to put beside the popular theory, the substance of which is that it is from lack of "causes of insanity" that farmers go mad.—*The Nation*.

### Bathing in Warm Water.

The *Sanitary World* considers cleanliness not only essential to good health, but it is a mark of good breeding. The laborer, by the clinging of dust to his perspiring person, becomes a fit subject for the bathtub very frequently. Too frequent bathing is weakening. It may not be advisable to take a bath morning and evening, as some medical journals advise, but a good washing frequently enough to keep the person clean. Warm baths will often prevent the most virulent diseases. A person who may be in fear of having received infection of any kind should take a warm bath, suffer perspiration to ensue, and then rub dry. Dress warmly to avoid taking cold. If the system has imbibed any infectious matter, it will be removed by resorting to this process, if done before the infection has time to spread over the system; and even if some time has elapsed, the drenching perspiration that may be induced by hot water will be very certain to remove it.

In case of congestion, bilious colic, inflammation, etc., there is no remedy more certain to give relief. In case of obstinate constipation also, wonderful cures have been wrought. For sore throat, diphtheria and inflammation of the lungs, a hot compress is one of the most potent remedies.

### American vs. Foreign Seeds.

It would be impossible to estimate, even approximately, the commercial value of our entire seed crop. The value of the seeds exported during the year ending June 30th, 1885, was \$2,166,674, —an amount which readily indicates that the value of those supplying the home demand must be many times greater.

Among the seeds most largely imported are beets, mangel wurzel, radish, spinach, parsley, endive, salsify, cauliflower, turnip, rutabaga, and most flower seeds. The total value of the seeds imported into the United States during the year ending June 30th, 1885, was \$4,499,809. It is a well-known fact, that nearly all American-grown seeds are superior to foreign ones; and the only reason why so great an amount of foreign seeds is still used, is that they may be imported cheaper than they can be grown and bought here. However, intelligent farmers and gardeners are rapidly learning, by experience, that low-priced seeds are generally the dearest, in the end; and the market gardener who invests annually five hundred dollars or more per acre in rent, labor and fertilizers, finds it a mistaken economy to save a few dollars by buying doubtful seeds at a low figure, instead of those of a known excellence at a fair price.—*American Agriculturist for March*.

A TENNESSEE man finds there are 300,000 worthless dogs in that State, which consume food enough, if fed to hogs, to make 30,000,000 pounds of bacon, which would be equal to feeding meat to 100,000 able-bodied men a whole year. At ten cents per pound, the bacon would be worth \$3,000,000; and if, in silver, would load down ninety-four two-horse wagons, and make a wagon train more than half a mile long. Again, the worthless curs prevent farmers from keeping 2,000,000 sheep, the mutton and wool from which would be worth \$5,000,000. Including the sheep annually killed, the whole expense of keeping the dogs of the State amounts to the pretty sum of \$9,000,000.

Not long since a great scare was raised in Newark, N. J., on account of some children having been bitten by a supposed mad-dog. It is now admitted by all capable local authorities that there does not exist a vestige of proof that the dog that bit the children sent to M. Pasteur from Newark was mad. We now learn that these gutter children, about whom the newspapers went mad, and tried their best to ruin, are now being exhibited at a five-cent show of fat women, learned donkeys, living skeletons, clever monkeys, and other such attractions of foolish peoples' pennies, at a place in the Bowery, New York.—*Farmers' Review*.

### Our Exchanges.

We learn from John Pope that the beavers cut down about 100 trees, large and small, on Fall creek, Bluff township, in this county, during the winter, and built a complete dam across the stream. They cut some trees eighteen inches in diameter, and floated their logs nearly a mile down stream. They provide against dry weather by damming the streams and backing the water, so the supply will not run out.—*Wellington Press*.

One farmer who professes to have tried the experiment, claims that the best way to husk corn is to run it through an ordinary wheat threshing machine, with the concave dropped down and with the machine prepared for that purpose. The stalks were drawn dry from the field, fed butt-end first, and were husked, shelled and cleaned all at one operation. The stalks were so broken that they were run with the straw into the mow.—*Council Grove Republican*.

Last week a large hog, belonging to A. C. Merritt, died from the effects of a disease having many symptoms similar to cholera. In order to ascertain the real cause of death, the animal was cut open, and an examination disclosed that the throat was full of worms. This gives good ground for the belief that the hundreds of hogs lost in this section during the last few months from what was considered cholera, actually died from the effects of worms in the throat; and it is hoped that parties who are still doctoring their swine to prevent and cure cholera will change their system of practice, and battle against worms.—*Louisville Republican*.

A moral as long as the Solomon river might be drawn from the hog case of Lawrence vs. Flintjer, which occupied the time of our district court for about a week, and resulted in a disagreeing jury. It had previously been tried three times in a justice court. The sum total of costs is about \$2000. The hog in dispute is worth perhaps \$12, and belonged rightfully to either Lawrence or Flintjer, or one or both of them was mistaken. If a mistake, it was not worth what was certain to cost to right it. If not a mistake, some one was very much in the wrong and knew it, and therefore was not justified in the beginning. Law is a good business—for lawyers.—*Osborne County News*.

Kansas is full of beautiful women, and many of her men are not other than handsome, and the State is full of beautiful things. Nature appears to better advantage nowhere as in Kansas. She shines in sunflowers, the prairies, the "timber," the bluffs and the valley and hills and ravines and mounds and the rivers. Nature's beauty is here supported by all the wiles of art, and the beauties of Kansas are seen in her towns and cities and homes and cultivated fields; in her massive walls of corn and waving masses of wheat in their season. In her liberal ideas, her progressive spirit, her undaunted enterprise, her towering majesty as a State in this Union, too, lies this great commonwealth's beauty. True beauty lies in its force to make a good impression. If it is not a charm, it is not a beauty. Then, too, after all, the truly handsome qualities lie in that which does things handsomely.—*State Journal*.

# THE INDUSTRIALIST.

SATURDAY, MARCH 13, 1886.

EDITED BY THE FACULTY.  
E. M. SHELTON, MANAGING EDITOR.

## Danger in Heating Buildings by Steam.

A circular by the Home Insurance Company of New York, on causes and prevention of fires, devotes considerable space to the discussion upon the setting on fire of wood by steam pipes. The brochure says: "To avoid danger of fire from this source, steam pipes should never be allowed to come in contact with wood or other inflammable material. When passing through floors or other wood work, they should be provided with metal collars, having radial points or arms extending from the inside, so as to form an air space around the pipe. When hung on the side walls of an apartment, they should be supported on iron brackets, and be kept free from all accumulation of dust." The article closes by asserting: "The occurrence of fires from this cause is too well known to admit doubt at the present time; and any tendency to carelessness in the arrangement or management of such apparatus should be severely criticised, and amendment insisted upon at once."

In our public buildings, as well as in ten thousand other large buildings in this country, few precautions have been taken to prevent the contact of the steam pipes with the flooring boards of the floor upon which the radiators stand—assuming that steam of a pressure of less than forty pounds possesses absolutely no danger for pine timber. What, now, if the Home Insurance Company is right?

It seems that wood submitted to the long-continued action of heat and moisture together may decompose to a condition where, under certain very favorable circumstances, spontaneous combustion can take place. Cases of this kind have been reported. It is improbable, however, that these conditions are brought about by well-fitted steam pipes. If the Company could demonstrate the smallest degree of danger from this source, it would cause a panic from one end of the country to the other, and produce an immediate outlay of thousands of dollars for steam pipe thimbles.—*Prof. Walters.*

## The Natural Gas Wells of Kansas City.

[Excerpts of a paper by Albert Deitz, read before the Scientific Club of this College, March 5th, 1886.]

The paper from which the following has been excerpted first spoke of the geological features of the natural gas regions of Pennsylvania; the methods of boring for gas; the uses to which it has been put; and the many experiments of scientists for the purpose of using it in the different industries as fuel or light. After giving a history of the great changes which the gas has worked in Pittsburgh and other Eastern cities, the paper came home to Kansas as follows:

It is not my intention to claim for Kansas City such a bright future, but I do anticipate much from the development of this new industry. The supply is not great,—not exceeding one hundred and twenty-five pounds pressure to the square inch in the strongest wells. But when we consider that the gas can be collected from any number of wells, and put through a refining process, which will give it five times its original heating and illuminating power, we can perceive

what might be accomplished. An expert from the Pennsylvania gas regions examined the well at Northrup's Mill, Wyandotte, Kansas, and gave as his opinion that there was enough gas flowing from that well to run the mill and light the city of Wyandotte. But inexperienced hands have tampered with the well until its supply has greatly diminished. At present all the gas that rises must force its way through 100 feet of water.

The refining process is not at all complicated; it consists simply in forcing the gas through a bale of cotton saturated with gasoline. The gas is a carbonated hydrogen, but the proportion of carbon to the amount of hydrogen is too small, and, passing through the gasoline, carbon is added, carbonating the gas. The cotton dries the gas and removes any other impurity it may contain.

There are three distinct veins of gas found in this locality. The first is found in full force just below the petro lime-rock strata at about 200 feet; but a match applied to the casing-head, even at 175 feet, will nearly always show the presence of the gas by a flickering flame, which burns for a minute and then goes out, which shows that the gas must penetrate the intervening 25 feet of sandy shale and soap-stone. This first vein of gas is rather capricious, always being strongest when first struck. It is supposed by some that the gas rises from the coal beds, and is held in force by being unable to penetrate the petroleum rock; but this seems improbable, for when the casing is run below the vein, it entirely shuts the gas off, until the next vein is approached. The second is generally struck between 225 and 250 feet. A stratum of sandy lime rock about seven feet in thickness is found just above the gas. The third and last gas vein is found between 300 and 350 feet. In our own well, the drills are down 360 feet, and have not struck the last vein of coal or the last vein of gas, and the formation they are in is different from any ever found in any of the drillings made in this vicinity.

We intend to go down until we reach a formation that will tell us where we are. The gas we now have from the first two veins throws a blaze eight to ten feet, and might displace twenty bushels of coal every ten hours.

The Encyclopedia Britannica gives East Liverpool, Ohio, the honor of being the first to use natural gas (in 1875); but, to my own personal knowledge, it was used in this county in the early part of 1874, by Mr. Wiley, for warming his residence, about a mile southwest of Wyandotte.

In the summer of 1874, my father put up a wind-mill over the well to pump the water, so as to give the gas a freer flow. Mr. Wiley piped the gas from the well to a crude gasometer consisting of a large zinc vessel inverted in a hogshead of water. Upon the zinc vessel was a weight of about fifty pounds, which forced the gas through pipes to his residence, about one hundred yards away. There are several other wells in Wyandotte which have been giving a good supply of gas for a number of years, but this is the only case where I know of its being utilized until within the last year.

In Rosedale, four miles south of Wyandotte, there have been three wells flowing gas for the last five years. The one at Sweet Springs, south of the Rosedale depot, threw mud and water twenty feet into the air when the drill struck the last gas vein. The casing was removed from this well, but the gas continues to flow. There were so many idling inves-

tigators burned from lighting the gas that the city recently had man-heads put over the well. There is also an abandoned coal shaft in Rosedale four hundred feet deep and filled with water within eight feet of the top, over the surface of which the gas can be seen bubbling up, making a hissing, rattling sound like the boiling of a teakettle. While working on this shaft, the fireman left a torch near it. By some mishap, the brand was knocked over, falling in reach of the gas, causing a terrific explosion, blowing the boxing and timbers up in the air, and piling them in a heap in the bottom of the shaft.

Mr. Kellogg, of Kansas City, says that eight or ten gallons of petroleum flow from his well every twenty-four hours, and more or less is found in all the wells. It makes a very good lubricating oil. At the time of the explosion of the Kansas City Gas Works, Mr. Kellogg offered to supply the city with gas, by forcing the gas from his well into the gas mains of the city, but nothing was done toward it.

A company has been trying to get a franchise from the city council to furnish the city with gas at a cost of not over \$1.75 per thousand feet; and, as the present company charges \$2.50, it is my opinion that the new company proposes to use natural gas.

The theory that the gas supply is constantly being renewed by the mysterious process in nature is probably a fact. There are many wells where the supply gradually diminished, and finally gave out entirely; but investigation will locate the cause in the stoppage of the hole, and not in the supply of gas.

In cases where quite a number of wells have been put down close together, where they tap the resources of each other, there is very naturally a shrinkage in the flow of the first. Sometimes a new well will most entirely rob an old one of its supply. In Pennsylvania and Kentucky, wells have been burning for years with no perceptible falling off of volume.

At points upon the Caspian Sea, several natural gas wells have been burning from time immemorial.

## Report for the Music Department, 1884-85.

To the Board of Regents:

GENTLEMEN—I herewith submit a report of the Music Department for the year 1884-85.

In the Instrumental Department, 61 different students were enrolled—18 young men and 43 young women; 28 of this number taking lessons on the piano, 21 on the organ and 12 on other instruments.

The class of the fall term numbered 36, that of the winter term 35 and that of the spring term 33. About one half were beginners, and a small percentage of the rest could play fairly well; hence my work is mostly teaching the rudiments.

With the necessarily short allowance of time for practice, very marked improvement is the exception rather than the rule, this being particularly the case with those studying the piano. Enough, however, is accomplished by those having ability and ambition to lay the foundation for excellent players. The course is a thorough one, and, even if not completed during the student's stay here, aids his playing materially. Harmony is also taught. All are expected to take the preparatory course; the study afterwards is optional.

The number enrolled in the vocal classes was 147—97 young men and 50 young women. In each term two classes

were taught, one composed of beginners, the other of those somewhat advanced; each class meeting twice a week on alternate days.

The classes of the fall term numbered 107—75 in the elementary and 32 in the advanced class; those of the winter term 86—65 elementary and 21 advanced; and in the spring term 41—21 elementary and 20 advanced.

A thorough knowledge of the elements of music was insisted on, every step being fully explained and made clear before practicing it. Those in the lower class showing sufficient progress could at any time be transferred to the advance class. The progress of both classes was commendable.

During my illness of over a month in the winter term, the classes in vocal music were taken in charge by Prof. Walters.

The College orchestra, numbering 12 pieces, had drill once a week during the year. The music furnished by it added much to our various exercises.

With the exception of a few pieces, the music during Commencement week was furnished by advanced pupils in instrumental music, the singing classes and the College orchestra.

Respectfully,

W. L. HOFER.

## College Finances.

The following statement of balances from the Secretary's books shows the actual condition of the various funds, Feb. 28th, 1886.

### ENDOWMENT FUND.

In State Treasury:

School bonds:	
10 per cent.....	\$ 26,682.13
7 per cent.....	86,664.79
6 per cent.....	147,446.34
	\$260,793.26

Municipal bonds:

10 per cent.....	\$ 3,400.00
8 per cent.....	5,000.00
7 per cent.....	3,200.00
6 per cent.....	121,300.00
	\$132,900.00

Real estate securities:

8 per cent.....	\$ 5,300.00
7 per cent.....	1,340.00
	6,640.00
Land contracts, 10 per cent.....	80,197.25

Total..... \$480,530.51

Cash.....	\$ 19,583.47
Less war'ts outstanding, 700.00	18,883.47

Total Endowment..... \$499,363.98

Acres of land..... 160

### INCOME FUND.

In State Treasury:

Cash.....	\$3,759.43
Less war'ts outstanding, 3,000.00	\$759.43

In College Treasury:

Overdraft.....	757.81
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Actual surplus.....	\$1.62
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APPROPRIATIONS, 1885-86.

In State Treasury:

Experimental barn.....	\$508.93
Laboratory steam heat.....	217.14
Salary, Loan Commission-er.....	150.00
General repairs.....	59.97

1886-87.	\$936.04
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Museum building.....	\$3,000.00
General repairs.....	1,400.00
Cattle sheds and cribs.....	1,100.00

Salary, Loan Commission-er.....	300.00
	\$5,800.00

	\$6,736.04
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Less approved bills:

General repairs.....	\$ 16.00
Experimental barn.....	52.50
Laboratory steam heat.....	19.63
	\$88.13

Actual balance.....	\$6,647.91
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### A Good Education Pays.

1. In dollars and cents. All testimony of statistics agrees in showing that educated laborers, of all ranks, have better work and better wages than the uneducated.

2. In influence and position. Careful estimates make it certain that the chances of promotion to places of trust and power among men are almost two hundred times as great to an educated man as to an uneducated.

3. In usefulness. The bulk of good work in the world,—discovery, invention, government, philanthropy and religion,—is brought about by those who learn to think by study.

4. In enjoyment. Our pleasures grow out of what we are ourselves more than from surroundings. A well-trained man sees, hears and handles a great deal more of the world than an untrained one. All things do him good, not so much because he owns them as because he understands them. He always has good things to think about.

## THE INDUSTRIALIST.

SATURDAY, MARCH 13, 1886.

### CALENDAR.

1885-86.

FALL TERM.—Sept. 10th to Dec. 18th.  
WINTER TERM.—Jan. 5th to Mar. 28th.  
SPRING TERM.—Mar. 29th to June 9th.  
June 9th, Commencement.

Persons receiving the "Industrialist" need have no fear of bills to come; for the paper always stops with the expiration of subscriptions, unless continued by favor of a friend or of the College.

### BONDS WANTED.

School District bonds issued on College blanks will bring their par value at once. Address T. P. Moore, Holton, Jackson Co., the College Loan Commissioner.

The Manhattan Horticultural Society postponed its regular monthly meeting until Thursday, March 18th, because of bad weather.

About the most intensely interesting "books of reference" in the College during the past week have been the grade registers in the Secretary's office.

The rain on Thursday seems to have been too much for the horticulturists who were to have a meeting in the Horticultural building on the afternoon of that day.

Mr. T. C. Wells, who has lately returned from a well-earned farmer's vacation, spent in the Eastern States, remembered the College museums with an assortment of minerals and various sea shells, picked up during his wanderings. Thanks.

From the Department of Agriculture, some twenty varieties of wild grasses, mostly sorts peculiar to the region of the plains and mountains west of us have been received. These will be the subjects of an interesting experiment to be carried out in coming years.

Our fifth Institute, and probably the last one of the year, will be held at WaKeeney, Trego county, on the 25th and 26th of this month. The irrepressible (not impulsive, as the printers made us say last week) Col. Tilton, of the *World*, is working the matter up with characteristic energy.

What shall be done with our ruined wheat fields? is a persistent and very common question hereabouts. We propose to answer this question for ourselves by sowing the wheat fields to winter oats as soon as the ground is in condition to receive the seed,—thoroughly harrowing the ground before and after seeding. If any of the wheat plants survive this treatment, they will be no detriment to the feed which the oats thus grown will furnish.

On Thursday, Mr. Geo. Avery, a well-to-do farmer residing in the western part of Riley county, came down to the College Farm, and, after looking over the herd, was so much impressed with our Angus beauties that he determined to take with him a pair, although the price asked was one that would have deterred one having less faith in the black bulls. Mr. Avery got the imported four-year-old bull Certainty (2604) and the young cow Eyebright VI (7202)—a pair, we wish to remark, which, with proper treatment, will found a herd of rare merit and a fortune for their owner.

It is quite the fashion to speak harsh things of those "grinding monopolies"—the railroads; but the many facts that may be cited in their favor do not often get into print. Here is one of these "mitigating circumstances": We recently shipped an eleven-months-old bull on the Union Pacific railroad a distance of ninety-one miles, at local rates; he had a whole car to himself, and two long switches, aggregating nearly a mile, were made expressly to get him into the train and out of it again. The total freight charges for this great amount of work were exactly \$3.45. Truly, this is carrying the idea of cheapness to an extreme.

The young Cruickshank bull recently purchased for this College has met with serious accident. While transhipping him at Linwood, he became alarmed at something when near the station, made a bold dash for freedom, and, striking his foot under the edge of a wood-pile, broke the left hind leg at a point about five inches above the hock. He was brought to Manhattan on the early Monday morning train, and soon was delivered at the College, without further accident. Dr. Young, of Abilene, who has been in attendance upon the

sufferer, thinks that no serious results beyond, perhaps, a more or less crooked leg—which will in no way interfere with his usefulness—will come from the accident. The youngster eats and drinks well, showing no great signs of fever, and every day adds to our confidence in a speedy healing of the broken limb.

One by one the ancient landmarks pass away! A few weeks ago we referred appropriately in these columns to the demise of the old cow Grace Young 5th. This week, as a faithful chronicler of events at the College, we have to notice the departure of the old Shorthorn cow Cambridge XIX, by Nimrod 1299, which, before this has been read, will have been converted into a very mean article of sausage meat for ultimate consumption somewhere east of the Missouri river. Whoever is fated to encounter at the dinner table this ancient bovine, has our profound sympathy. A fellow-feeling makes us wondrous kind. Although a rather ordinary-looking cow, Cambridge XIX was the dam of many things, notably our much-admired Cambridge Jubilee. The old cow was very miscellaneous bred, but was closely related to some of the very best Booth and Bates sires that have ever lived. She has been used before a good many classes in agriculture as an illustration of the idea that so many Shorthorn breeders have been loth to accept, namely, that a cow whose pedigree is made up chiefly of "out crosses" may yet be a reliable breeder of superior stock.

### COLLEGE SOCIETIES.

**ALPHA BETA.**—Chartered, December 28th, 1870. Meets in the Society Hall every Friday at 2:30 P. M. Ladies admitted. New students cordially invited to attend.

A. M. GREEN, President.

**MISS IDA QUINBY,** Secretary.

**WEBSTER.**—Chartered, January, 1871. Meets in Society Hall every Saturday evening. Visitors, especially students, always welcome.

D. G. ROBERTSON, President.

F. H. AVERY, Secretary.

**SCIENTIFIC CLUB.**—Meets on first Friday evening of each month. Composed of members of the Faculty and advanced students. Devoted to the improvement of its members in general scientific knowledge, and the encouragement of original investigations.

PROF. WALTERS, President.

MRS. KEDZIE, Secretary.

**HAMILTON.**—Chartered January 29th, 1885. Meets every Saturday evening. Admits gentlemen only. Visitors always welcome.

G. W. WATERS, President.

C. F. GOSS, Secretary.

The Y. M. C. A. meets at 3:30 P. M. Sunday.

D. G. ROBERTSON, President.

C. A. MURPHY, Secretary.

The Y. W. C. A. meets Thursday afternoon.

F. HENRIETTA WILLARD, President.

NELLIE COTTRELL, Secretary.

### REPORTS.

SOCIETY HALL, March 12th, 1886.

The Alpha Betas came to order at call of President Green. Ida and Ada Quinby sang a duet,—"A Child asleep under a Rose-bush Fair,"—Henrietta Willard organist. Maria Hopper offered prayer. R. C. Bell then gave an amusing recitation. Ada Quinby read a well-written essay—"The life of Keats." The question, "Resolved, That the condition of a nation depends more on its literature than on its laws," was argued on the affirmative by J. W. Van Deventer and J. V. Venard, the negative being discussed by V. V. Aiken and F. A. Stacy. The decision was rendered in favor of the negative. The *Gleaner* was presented by Maria Hopper. The Society then listened to a well-executed quartette by Misses Quinby and Messrs. Jones and Wright. After a five-minute adjournment, the remainder of the session was profitably and pleasantly occupied by extraneous speaking and business. C.

SOCIETY HALL, March 6th, 1886.

The Websters came to order by call of the Secretary. Mr. Burtis was called to the chair. After the usual order of roll-call and devotion, the Society passed to the order of balloting on candidates. Mr. E. F. Nichols and W. L. Morse were elected and initiated. The President came in during this order and took the chair. The Critic being absent as usual Mr. E. H. Snyder was appointed to act in that capacity. The question, "Resolved, That more information can be gained by reading than by traveling," was argued on the affirmative by H. E. Robb and C. M. Breeze; on the negative by G. Arnold and G. R. Gill. The judges made their decision in favor of the negative. Declarations were given by H. W. Aiman and M. U. Hughes. Essays by P. S. Creager and R. Oakford. Discussion by C. E. Friend, E. A. Allen,

A. J. Snyder, L. D. Bunting and F. H. Avery. The attendance at the meeting was good; and it need hardly be said that the interest was lively and well kept up.

TEDDY.

SOCIETY HALL, Mar. 6th, 1886.

At the rapping on the table by President Waters, the Hamilton Society came promptly to order. Roll-call showed that thirty members were not afraid of mud, and were brave even unto rashness. E. M. Paddleford led in devotion. The question, "Resolved, That Captain John Smith deserves more credit in the colonization of the United States than does William Penn," was ably discussed by A. C. Cobb, assisted by C. Wickizer, on the affirmative, and F. E. Goss, assisted by R. Snyder, on the negative. Each speaker entered into the discussion with much zeal, endeavoring to defeat his adversaries. The negative was much chagrined at the decision of the judges. An intermission of ten minutes was granted to divide the programme. Z. E. Wright then delivered a "Eulogy on Hamilton;" essay by B. M. Bovard; declamation by Mr. Trant; Mr. Hammerli then read an essay on "Education by Observation." This well-prepared essay shows Mr. Hammerli to be one who passes through life with his eyes open. Mr. Brown then declaimed, followed by Mr. Jeffries with a declamation; E. M. Paddleford sang a solo, entitled "Faded Coat of Blue." Extemporaneous speaking was unusually interesting. A decided improvement has taken place in this order since the questions have been prepared by the committee. A few weeks ago a committee was appointed to procure a picture of Alexander Hamilton, the man for whom the Society was named. The picture (24x30) now hangs above the President's desk, and is an honor both to the Society and to the artist, Mr. A. W. Patterson, an old student of the College. We cannot but feel proud of the picture. ALE.

CHEMICAL LABORATORY, March 5th, 1886.

The meeting of the Scientific Club was called to order by President Walters. The first paper was upon "Kansas Grasses," by Mr. Carleton. He compared the several grasses in relation to their value as foods, giving the relative amounts of albuminoids and of fatty matters contained in them. The theory is advanced that sometime our wild grasses may be caused to grow so luxuriantly and the essential elements be so increased as to make those grasses, indigenous to our soil, the most profitable for growth.

Discussion arose about the value of cellulose, and upon the sugars and flavors of grasses which often attract animals. Prof. Kellerman spoke of the succulence of grasses, and gave an instance of so much water in blue-grass that it failed to keep cattle up in flesh.

Paper number two was from Mrs. Kellerman upon "The First Systematizer." She gave a very interesting paper upon the life of Charles Linnæus. His childhood, early training, and the trials he underwent in order to attain the eminence he enjoyed, were very vividly described. The Club exceedingly appreciates and enjoys such papers.

The third subject was the natural gas wells of Wyandotte, a paper written and sent by Alumnus Deitz. It was read by Mr. Graham. Parts of it are published in this issue of the INDUSTRIALIST.

During the discussion which followed this paper, Prof. Failyer thought there was no limit to the uses to which gas as a heater may be eventually put.

Mr. Brous illustrated an original vibratory telephone, constructed by the use of angle irons which were so placed as not to interrupt the vibrations, and he was enabled to turn right angles, or even those of smaller size. He found he could hear distinctly at a distance of four hundred feet.

D. G. Fairchild gave a description of crystals of celestite found over the Kansas by Prof. Lantz. These crystals, which were analyzed by Mr. Fairchild, were of a clear beautiful blue on the ends, but of a dull rusty red in the center; this red probably being given by iron. The specimens are the best yet found in the State; and this seems one of the very few places where it is found at all in Kansas.

Mr. Norris spoke of a winter grass growing in western Kansas which somewhat resembles rye or wheat. He also stated that he had collected twenty-three varieties of grass; and he hears of a lady in the northern part of the State who has gathered seventy-three species.

Supt. Graham gave notice that at the next meeting he would move to change the time of meeting of the Club from the first Friday evening of the month to the second.

MRS. KEDZIE, Secretary.

### Objects.

This College now accomplishes the objects of its endowment in several ways.

First, it gives a substantial education to men and women. Such general information and discipline of mind and character as help to make intelligent and useful citizens are offered in all departments, while the students are kept in sympathy with the callings of the people.

Second, it teaches the sciences applied to the various industries of farm, shops and home. Chemistry, botany, entomology, zoölogy and mechanics are made prominent means of education to quick observation and accurate judgment. Careful study of the minerals, plants and animals themselves illustrates and fixes the daily lesson. At the same time, lessons in agriculture and horticulture show the application of science; and both are enforced by actual experiment.

Third, it trains in the elements of the arts themselves, and imparts such skill as to make the hands ready instruments of thoughtful brains. The drill of the shops, gardens, farm and household departments is made a part of a general education to usefulness, and insures a means of living to all who make good use of it. At the same time, it preserves habits of industry and manual exertion, and cultivates a taste for rural and domestic pursuits.

Fourth, it strives to increase our experimental knowledge of agriculture and horticulture. So far as means and circumstances permit, experiments are undertaken with a view to more definite results than ordinary experience can give. By this method the students themselves are trained to a more accurate observation and judgment in these practical tests of principles in farming.

Fifth, it seeks to disseminate such practical truths as have stood the test of scientific inquiry. For this purpose it publishes the INDUSTRIALIST; and its officers share in debates and consultations of farmers and horticulturists throughout the State. Each winter a series of six Farmers' Institutes is held in as many different counties of the State. In these the Faculty share with the people in lectures, essays and discussions upon topics of most interest to farmers.

### MANHATTAN CARDS.

#### Manhattan Hotels.

Cottage Hotel, \$1.00 per day.

Commercial House, \$2.00 per day.

#### George Firestone.

Livery, Feed and Sale stable. East end of Poyntz Avenue.

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Merchants, proprietors Blue Valley Mills Manhattan, Kansas.

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Photograph Gallery. Established, 1859. Opposite Purcell's Bank.

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COLLEGE TEXT-BOOKS, School Stationery, Pencils, Ink, Scratch-books, etc., etc. Manhattan, Kansas.

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Best goods and best prices. Boys, come and see us, opposite Purcell's.

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In basement room opposite Purcell's. This is the place to get a good easy shave, a first-class hair cut, and a good, clean bath. Satisfaction guaranteed. Don't forget the place, but give me a call and be convinced.

P. C. HOSTRUP, Proprietor.

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Opposite the Postoffice, keep a full line of Groceries, Flour, Fruits, Candies, Nuts, etc. Their goods are fresh and first-class, and prices are low and ten per cent off for spot cash. Goods delivered free in any part of the city and on College Hill. We invite all to call, and we will endeavor to give satisfaction.

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#### Manhattan Bank.

E. B. Purcell, banker. J. W. Webb, cashier. A general banking business transacted. Bills of Exchange issued on all principal cities and towns of Europe. All collections have personal, faithful and prompt attention of our attorneys. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

#### E. B. Purcell.

Corner of Poyntz Avenue and Second St., has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, &c., &c. Goods delivered in all parts of the city, and at the College, free of charge.

#### Kansas Educational Notes.

PROF. J. D. WALTERS.

The capacity of Haskell Institute is 350. There are now 365 pupils in the school, and twenty-five applications for admission are now before the Superintendent, who is compelled to refuse them until additional accommodations are provided.—*Lawrence Tribune*.

Prof. L. W. Spring, who is at present occupying the chair of English Literature in the Kansas State University, has accepted the same position in Williams College. Prof. Spring is the author of the "History of Kansas" published with the series of American Commonwealths.

At present there are scarcely any schools in Kansas worthy of the term "high." In the past the law has not authorized the levy of a sufficient tax to sustain good common schools in the cities of the second class. Money enough will be provided under the new law; but the cumbersome and political school board is retained.—*Newton Republican*.

At the recent term of court in Wilson county, a school teacher named Williams was awarded \$3000 damages for a ducking which he received in a frozen pond in January, 1885, at the hands of some of the big boys. The young hoodlums who did the ducking probably don't look at the joke as being quite as large as they did a year ago.—*Sedan Times-Journal*.

We reported some time since that V. P. English, a school teacher of Miami county, brutally whipped a scholar. He was arrested and fined before a justice of the peace. He appealed to the district court with the same result. From this court he appealed to the supreme court: and we hear now that the latter sustained the decisions of the lower courts.

This winter the school laws were amended in relation to salary of county superintendents so as to allow them \$600 in counties having from 1000 to 1200 persons of ages between five and twenty-one years; from 1200 to 1500 school population, \$700; and in counties containing more than 1500 persons of school age, he shall receive \$700 and \$20 additional for every additional 100 such persons. In counties containing less than 1000 of school population, the superintendent shall receive \$3 for the time actually employed not to exceed 150 days in one year. This move should have been made three years ago.

#### A Needed Institution.

The fact that a young girl of this city has been turned over to the police by her parents, and locked up to keep her from vicious courses, suggests that it is a shortsighted policy which builds a State Reform School for boys and makes no provision for girls; and embarks on an expensive and elaborate system or reformatory discipline for criminals without any special provision for females.

Because there are a great many more men and boys in prison than women and girls does not prove so much that the criminal tendency of the female sex is weaker as it proves that courts and juries are more lenient to women than men. As long as imprisonment is considered merely as punishment, the female offender is "sent up." Probably it is the inequality thus existing that has led to the difference we have mentioned in the provision for girls as compared with boys.

When the modern philanthropic view of the case is taken and imprisonment or detention is considered as a reformatory rather than a punitive process, it is strange that the State has not long ago provided in Kansas some place for young female offenders which combines the functions of a school, an asylum and a place of detention, yet not a place the name of which is synonymous with disgrace. The objection made to institutions like the Home for the Friendless at Leavenworth is that no control can be exercised over the inmates; that it is sought and abandoned voluntarily, and is used as a hospital and a refuge for a time, and can exercise no permanent influence. An institution like the State Reform School for boys, with some modifications, would be of vast service to a much larger class of girls than is commonly supposed.—*Atchison Champion*.

#### Wyandotte Summer Normal.

Messrs. Palmer and Maxwell, of Wyandotte, and Rose, of Rosedale, will open a summer school in the Wyandotte Academy for the benefit of those who wish to accomplish a great deal in a short time. It will commence May 31st and continue nine weeks. Four classes will be established; viz., teachers', classical, business and juvenile.

The teachers' course is intended for teachers and those who expect to engage in teaching. The work in this course will be based on the course of study for normal institutes issued by the State Board of Education.

School management and the best methods of teaching will be taught practically. Teachers who take this course will be able to take advanced standing in their profession, do better work, and command higher wages. Those who are preparing to teach will be more thoroughly fitted for the work of the school-room, both as regards a knowledge of the subject to be taught and methods of teaching.

The classical course is designed for those who expect to attend college during the coming year. Thorough and efficient drill will be given in all the work required for admission to the freshman class. Students who take this course will enjoy the benefits derived from thorough preparation for college.

The business course will be adapted to the wants of those who wish to gain a knowledge of book-keeping and business methods in the shortest time possible. Students taking this course will be able to get a thorough working knowledge of the principles of book-keeping, business arithmetic and commercial forms and usages.

The juvenile course will be arranged to accommodate students who wish to pursue their regular school work during this time. In this course, thorough and systematic work will be done, which will enable the student to take advanced standing in his classes or grades. Classes will be organized in reading, penmanship, English grammar, geography, U. S. history, arithmetic, algebra, physiology, philosophy, etc.

#### Plain Talk to Boys.

You, boys of today, will soon be the merchants, bankers, mechanics, editors, lawyers and doctors of the city; and the sooner you realize this, the better it will be for you. There is always room at the top in any profession. Life is not very satisfactory at the best; but, then, your lives are very much what you make them. You may think it quite the thing to loaf around the streets, smoke, chew tobacco, swear, drink whisky, make indecent remarks about young girls; but we wish to assure you that no good can result to you from such evil doing. Honest, intelligent boys, who have no bad habits, are always in demand, and these are they who make the good and honored citizens of this world; and within you is the power to make of yourselves just such good and great men.

It does not pay to become addicted to such ill habits as drinking and swearing; and, should you err in your young life, you will ever after regret it. There will be no time in your better, later life that you will not hate to recall so despicable a doing. Fun, real *bona fide* fun, is an excellent thing in its place, and it is well enough to have lots of it while you are boys; but it is also well to guard against mistaking wrong-doing and degrading habits for fun. What is more disgusting than to see a half-grown boy with a foul-smelling cigar in his mouth or with filthy tobacco juice drooling down his chin? You may think you can commit these sins of depraved youth on the sly—the world being none the wiser; but there you deceive yourselves. There is a proverbial saying—from good authority—"Be sure your sins will find you out;" and there is nothing more certain than this surely. You, boys of this town, will soon be the men hereof; and what you start out to accomplish, that you will surely do. If you prefer to be a lawyer, a banker, a merchant, you have only to acquire steady and industrious habits together with sobriety and economy, and success must be yours. It is a simple proposition, simply solved. It is within you to become a lawyer, a statesman, a banker, a skilled mechanic, if you will, or you may be a street-loafer, a whisky soak, or a shiftless tramp. And, boys, you will

soon be called on to decide this question of being something or nothing.—*El Dorado Republican*.

#### General Duties and Privileges.

General good conduct, such as becomes men and women anywhere, is expected of all. Every student is encouraged in the formation of sound character by both precept and example, and expected "upon honor" to maintain a good repute. Failure to do so is met by a prompt dismissal. No other rules of personal conduct are announced.

Classes are in session every week-day except Saturdays, and no student may be absent without excuse. Students enrolled in any term cannot honorably leave College before the close of the term, unless excused beforehand by the Faculty. A full and permanent record of attendance, scholarship and deportment shows to each student his standing in the College. After each monthly examination a report of advancement is made to parents; and any student, upon leaving College at the close of a term, may receive a certificate of standing.

Chapel exercises occupy fifteen minutes before the meeting of classes each morning, and unnecessary absence from them is noted in the grades.

Twice in each month the whole body of students gather for a lecture from some member of the Faculty, or for the rhetorical exercises of the third and fourth-year classes. On alternate weeks all the classes meet at the same hour, in separate class-rooms, for exercises in elocution and correct expression.

There are three prosperous literary societies, two of them of many years' standing. All meet weekly, in rooms set apart for their use. The *Alpha Beta* is open to both sexes, and holds its meetings Friday afternoons. The *Webster* and the *Hamilton* admit to membership gentlemen only, and meet on Saturday evening.

The Scientific Club, composed of members of the Faculty and students, meets in the Chemical Laboratory on the first Friday evening of each month.

Every Friday evening a students' prayer meeting is held in a College Society Room, led by a member of the Faculty. On the Sabbath students are expected to attend services at least once in the different churches of the city.

Occasionally during each term the College Hall is opened for a social gathering of faculty and students, in which music, literary exercises and friendly greeting find place.

Public lectures by prominent men of the State are provided from time to time, as opportunity offers. All are free.

The Manhattan Horticultural Society meets monthly, and other farmers' associations occasionally, at the College, and the students have the privilege of attending these meetings.

#### Means of Illustration.

Two farms of 171 and 100 acres, for the most part surrounded by durable stone walls, subdivided into fields of variable size to suit the system of management.

A large variety of standard experimental grains in cultivation in fields and experimental plots.

A well-planned barn for grain, hay, horses and cattle; and a piggery of six pens, with separate yards.

Shorthorn, Aberdeen-Angus, Galloway and Jersey cattle; Berkshire, Poland-China, Jersey Red and Essex swine.

Farm implements of improved patterns.

Collections of grains, grasses and forage plants.

Orchards, containing 275 varieties of apples, 80 of peaches, 50 of pears, 16 of plums, 20 of cherries and 10 of apricots.

Small-fruit garden, with 200 varieties of small fruits, including blackberries, raspberries, gooseberries, currants and strawberries; and vineyard with 100 varieties of grapes.

Forest plantation of twelve acres, containing twenty varieties of from ten to fifteen years' growth.

Ornamental grounds, set with a variety of evergreen and deciduous trees. Sample rows, containing 150 varieties of ornamental and useful shrubs and trees, labeled.

Vegetable garden, with hot-beds and cold-frames and experimental beds. Practice rows for students' budding, grafting, cultivating and pruning.

A well-planned and furnished greenhouse of three rooms, stocked with a collection of native and exotic plants.

Chemical laboratory, with eight rooms, fitted with tables and apparatus for a class of eighty students; also, physical apparatus, meteorological instruments, and apparatus for advanced chemical work and assaying.

Models, plaster casts and patterns for drawing, and charts for illustration.

Botanical museum, containing a good herbarium, fairly representing the flora of the United States; a collection of native and foreign woods, seeds, nuts, dry fruits; a collection of abnormal wood growths.

Mineral and geological cabinets, including collections of Professor Mudge; a representative collection of the ores of Colorado, New Mexico and Arizona.

Zoological museum, containing a typical collection of birds and mammals, mounted; a cabinet of bird skins, eggs and nests; a good collection of reptiles and fishes in alcohol; a large series of land, fresh water and marine shells; a good representation of the insects of this locality, and a collection of invertebrates in alcohol.

Mathematical instruments,—compasses, transits, levels, chains, for field work.

Carpenter shop, with separate benches and tools for thirty students in each class, besides lathes, mortising machine, and general chest of tools for fine work.

Shop for iron work, with forges, vises, drill, etc.

Printing office, with twenty-five pairs of cases, a good assortment of body and job type, a Country Babcock press, a quarto jobber, and a paper cutter.

Telegraph office, with six miles of line, connecting thirty-two branch offices, and as many instruments, and a Remington type-writer.

Sewing rooms, with five machines, models and patterns.

Kitchen laboratory, with ranges, cooking utensils, dining-room furnishings, creamery and dairy furniture.

Music rooms, with four pianos, three organs, and other instruments.

A library, carefully selected and catalogued, containing 6,000 volumes. A reading room is maintained in connection with the Library, where may be found on file forty-five of the leading literary, scientific, technical and agricultural periodicals, and several hundred newspapers, including the principal daily and county papers from all parts of the State.

Armory, containing one hundred stand of arms (breech-loading cadet rifles, calibre .45) with accoutrements.

#### Earnings.

The labor of the students in the industrial departments is principally a part of their education, and is not paid for unless the student is employed—outside of required hours of labor—upon work for the profit of the College. Students are so employed upon the farm, in the gardens or the shops, and about the buildings. The labor is paid for at rates, varying with service rendered, from eight to ten cents an hour. The Superintendents strive to adjust their work to the necessities of students, and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly pay-roll for the past year ranges from \$37 to \$456.

Many students obtain work in the city or upon neighboring farms, and so pay a part of their expenses. Students employed in the shops are allowed to work somewhat for their own profit, in the manufacture of articles for sale and use. In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide by earnings outside of term-time, or from other sources, for the larger part of their expenses. The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education if he has the ability to use his chances well.

#### General Course of Study.

Each student is expected to take three studies besides one hour's practice in an industrial art: and variation from this rule can be only with consent of the Faculty.

Parallel courses are offered to both sexes with such differences as their necessities seem to call for. The following gives the general scope of the two; but fuller explanations are found in the annual catalogue.

FIRST YEAR.	FALL TERM.	Arithmetic. English Analysis. Geometrical Drawing.
	WINTER TERM.	Book-keeping, Drawing. English Structure. United States History.
SPRING TERM.	Algebra completed. Elementary Chemistry. Horticulture. 14 Lectures in Military Science.	
SECOND YEAR.	FALL TERM.	Geometry. Practical Agriculture or Household Economy. Organic Chem. and Mineralogy. 12 Lectures in Military Science.
	WINTER TERM.	Geometry completed, 5 weeks. Drawing, 5 weeks. Entomology. Analytical Chemistry.
THIRD YEAR.	FALL TERM.	Trigonometry and Surveying. Physiology. General History.
	WINTER TERM.	Mechanics. Agricultural Chemistry. Rhetoric.
FOURTH YEAR.	SPRING TERM.	Civil Engineering. Drawing, (or Hygiene). Chemical Physics. English Literature.
	FALL TERM.	Agriculture or Literature. Meteorology. Psychology.
	WINTER TERM.	Logic, Deductive and Inductive Zoology. Structural Botany.
	SPRING TERM.	Geology. United States Constitution. Political Economy.

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### COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

College Lands and all business connected with their sale are in charge of the Land Agent.

Bills against the College should be presented monthly, and, when audited, are paid from the office of the Treasurer, in Manhattan.

All Payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka.

The INDUSTRIALIST may be addressed through Prof. E. M. Shelton, Managing Editor. Subscriptions are received by Supt. Geo. F. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Kellerman, chairman of the committee on Museums.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding places, etc.,—may be obtained at the office of the President or by letter.

### Tobacco for Minors.

"Can a good man with a cigar in his mouth talk effectively to a boy with a cigarette in his mouth?"

A hundred times, No! As to the tobacco nuisance, public opinion is rising in both intelligence and sternness. It is doing this under the progress of scientific investigation, and especially under the impulse of notice which has been turned lately upon diseases caused by tobacco. It is now very well ascertained that delirium tremens may be produced by excessive indulgence in narcotics. The facts known to the medical profession as to lip and tongue cancers caused by tobacco are too horrible to be recited before a public assembly, especially over the grave of that great soldier whose death has made Mount McGregor a sacred height.

I have no patience with the *low white's mouth disease*, which is the name I give to the habit of chewing and expectorating tobacco. I must say that if I had a dog that had the habit of chewing and expectorating tobacco, or even of smoking it here, there and everywhere, I should shoot him. As this audience does not seem to be in perishing need of instruction or exhortation on the tobacco habit, I refrain from going further, except to command a volume which has just dropped from the press in this city on "The Tobacco Problem," by Meta Lander, and published by Cupples, Upham & Co., a worthy and popular book firm, in which I have no financial interest. I wish this excellent volume might be scattered wherever the tobacco nuisance prevails; that is, almost everywhere, in the highways and by-ways of travel and trade, and in many legislative halls, not excepting one at Washington.

In the Massachusetts Legislature a bill for the prevention of the sale of tobacco to minors has just passed the lower house by a vote of three to one. A gentleman long in a public position of honor and responsibility sends me in writing a very suggestive illustration. A lady from the country came to Boston to do some shopping. On her way to Boston a gentleman occupied half the seat with her on the cars. Half his time was spent in the smoking car and the rest with the lady. When she arrived in Boston, she was sick and was obliged to send for a physician. He examined her case, and informed her that she had been made ill by tobacco. She paid the doctor's bill and went home without doing her business, and wondering whether non-smokers have any rights which smokers are bound to respect. Another lady says she cannot come to Boston to do business on account of the ever-present fumes of tobacco in the street and shops.

No doubt tobacco blunts the sense of propriety. The narcotic nosegay is as unconscious of the odors he exhales as is the eater of onions and garlic. "Indifference or apathy with regard to the comfort of others," says the London *Times*, "is one of the most remarkable effects of tobacco. No other drug will produce anything like it. The opium-eater does not compel you to eat opium with him. The drunkard does not compel you to drink. The smoker compels you to smoke—nay, more, to breathe the smoke he has just discharged from his own mouth."

A lady coming from the South for her health was kept in the state-room of the steamer during all the voyage, on account of tobacco smoke on every part of the vessel, and lost the whole effect of the voyage because she could have no fresh air. Her husband, a lawyer, thinks that in equity she could bring a suit for damages against the steamboat company.

The new State House in Des Moines, Iowa, will not allow smokers to enter its portals. An edict has just gone forth that tobacco must not be used in the hall and corridors of the White House in Washington. Our Military and Naval academies do not allow their pupils to use tobacco. Several colleges in the

West prohibit the use of tobacco by their students. Germany has excellent laws forbidding the sale of tobacco to minors. Eighteen States in the American Union are now teaching children to abstain from alcoholics and narcotics; and my proposition is that the churches, both preachers and members, should rise at least to the secular level of the State Legislatures on both these subjects.—Joseph Cook, in the *N. Y. Independent*.

### A Merciful Man.

"The merciful man is merciful to his beast." Yet how many farmers, and especially farmers' boys, after heating a team in driving them to the village, think nothing of letting them stand about the streets for hours at a time, perhaps, with not even a blanket, while they are gossiping near a warm stove or taking exercise about their ordinary business.

A citizen from Kalamazoo, Mich., got a happy thought, and, being a humane man, acted upon it. Noticing the exposure of teams coming to the city, especially in cold and stormy weather, he determined to give farmers an opportunity to make their horses comfortable during their stay. He purchased land just off the principal street, and proceeded with his undertaking. He was made the subject of many jokes from all quarters for his "foolish enterprise;" but he went on and carried out his plan, and today there is nothing in Kalamazoo so popular with country people, coming to the city on business, as the farmers' sheds. They are described as follows:

On the right is a waiting-room, well-furnished and comfortably warmed, supplied with hooks for over-coats and hats, and wardrobes and apartments for ladies' wraps; in another room are tables and a restaurant; as you pass into the yard there is a tank of water for horses. You drive up to the platform of the waiting-room and you and your ladies alight by simply stepping on the platform; you hand a dime to an attendant hostler and he takes your horse and buggy to an empty stall to stand until you call, giving him all needed attention. Give two dimes, and your horse is not only attended to, but fed. In either case you are entitled to the privileges of the waiting-room, which includes tables, where you may partake of your own lunch, free, or for a low rate you have as ample a bill of fare to choose from as you may desire. When you choose, you and yours go out on the street, transact your business, do all errands, and return to the shed waitingroom.

Sundays these sheds are filled. Ladies arrange their toilets, leave their extra wraps, and on their return from church they take a warm soap-stone, get thoroughly warm, and find it much pleasanter than formerly, before these sheds were offered. A portion of these sheds have doors and locks, so if a man comes in and desires perfect safety from thieves he can have it. Why should not all principal villages have these humane helps to the comfort of farmers' horses?—*Lawrence Tribune*.

DID it ever occur to the average thinking mind that we might squeeze along for weeks without a dog? Whole families have existed for years after being deprived of dogs. Look at the wealthy of our land, they go comfortably through life, and die at last with the unanimous consent of their heirs, dogless.

Then why can not the poor gradually taper off on dogs? They ought not to stop all of a sudden, but they could leave off a dog at a time until at last they overcame the pernicious habit.

I saw a man in St. Paul last week who was once poor, and so owned seven varieties of dogs. He was confirmed in that habit. But he summoned all his will power at last, and said he would shake off these dogs and become a man. He did so, and today he owns a city lot in St. Paul and seems to be the picture of health.

I have said a good deal about dogs, pro and con, and I am not a rabid dog abolitionist, for no one loves to have his clear-cut features licked by the warm, wet tongue of a noble dog any more than I do; but, rather than see hydrophobia become a national characteristic or a leading industry here, I would forego the dog.

Perhaps all men are that way, however. When they get a little forehanded, they forget that they were once poor, and owned dogs. If so, I do not wish to be unfair. I want to be just, and I believe I am. Let us yield up our dogs, and place the affection that we would otherwise bestow on them on some human being. I have tried it, and it works well. There are thousands of people in the world, of both sexes, who are pining and starving for the love and money that we daily shower on the dog.—*Extract from Bill Nye's letter on Hydrophobia*.

### Our Exchanges.

W. H. Tedford, who returned from the west yesterday, told a reporter this morning that he saw 1700 dead cattle in one pile a few miles from Spearville. Besides this, the prairies are thickly strewn with dead sheep.—*Newton Republican*.

Deeds covering sixty-four sections of railroad land, about 41,000 acres, were filed for record last week. Estimating this land at \$4 per acre, it will add \$164,000 to the list of taxable property in Sheridan county on March 1st.—*Kenneth Sentinel*.

By an act passed by the Legislature, and now a law, all persons paying their fare on railway trains will have to pay ten cents extra for any distance less than fifteen miles, fifteen cents for any distance not exceeding fifty miles, and longer distances proportionally.

Another lesson thoroughly learned by daily object lessons is that it does not pay to leave sorghum in bunches in the field to dig out of the snow, to say nothing of the loss in value from exposure to the weather. And another thing farmers now realize is that a big straw stack well put up is of vastly more value for feeding purposes than is generally supposed.—*J. G. McKeen, in Russell Journal*.

Among the laws passed by the Legislature just adjourned, the one in relation to Sabbath hunting, will be received with special satisfaction by our people. It reads like this: "Every person who shall engage in hunting or shooting on the first day of the week, commonly called Sunday, shall be deemed guilty of a misdemeanor, and upon conviction be fined in a sum not less than five nor more than twenty dollars."

The heel flies are making the cattle get up and "heel it," down in the territory. A herd will be grazing quietly along, and all at once they will throw their tails up over their backs, away they will go like mad. They seek the nearest stream or pool, and blindly plunge into it. Their weak condition at this season of the year makes it very dangerous for them to get into the mud, as they are unable to get out. The cowboys are kept constantly riding along the streams and watering places pulling out the bogged animals.—*Kiowa Herald*.

Miss Lubinsky, who lives between Newton and McPherson, and two little girls were going along, last Thursday, the young woman carrying a wash-tub, when they were met by a mad dog, which first attacked one of the children. The young woman ran to the child's assistance and drove the dog away. It then jumped at the other child, and the young woman went to its rescue, when the dog attacked her. She, with great presence of mind, managed to get the dog down on the ground and the wash-tub over and upon him, and so held him until some men came to her assistance and killed the animal.

# THE INDUSTRIALIST.

SATURDAY, MARCH 20, 1886.

EDITED BY THE FACULTY.  
E. M. SHELTON, MANAGING EDITOR.

## Artificial Fruit-Flavors.

It is well known that many of the flavoring essences and extracts contained in fruits are now so perfectly imitated that they are very extensively used without any possibility of distinguishing their flavor from that of the genuine fruit-flavors; indeed, in many cases the flavor of the fruit is doubtless due to the same chemical compounds that are prepared by the chemist. These artificial fruit-flavors are far cheaper, and may, therefore, be used in greater concentration than natural flavors would be. They find extensive use in preparing foods, flavored drinks, and in "aging" liquors. It has often been questioned whether these artificial flavors are injurious to health. Messrs. Poincare and Vallois have attempted to give an answer. Several of these artificially-prepared flavors were injected under the skins of dogs and of guinea-pigs, and the effects on the animals noted. It was found that both classes of animals withstood the injection of large doses of these substances; but it was possible, by exceedingly large doses, to poison them, dogs being less readily affected. Great prostration and distressed breathing were the most prominent symptoms. In almost every instance, animals poisoned by injections under the skin, fully recovered. The experimenters give it as their opinion that, although extremely large doses are injurious to health, the very small quantity taken in flavored foods and drinks is entirely harmless.

But it seems that the method by which these flavors were tested is itself objectionable. The injection into the circulation of a large amount of foreign matter might readily cause derangements that would not in the least be caused by introduction of the same substance into the alimentary canal with food. When the injection of infinitesimal doses is followed by marked and profound derangements, the result may justly be attributed to an active principle in the substance injected. The same conclusion is justified when, in inoculating with some supposed virus, the patient shows symptoms indicating a period of incubation and regular development and culmination of the disease. But when, as in the case before us, it is necessary to introduce into the circulation large doses of the suspected substance, something more is required of the experimenter: he should show by well-directed tests that the effect is not and cannot be due to the presence of so much abnormal substance, without much regard to its character. In deciding whether or not the artificial flavors are to be condemned, exactly similar trials with the natural flavors should be made. It is entirely probable that like injections of the flavors extracted from the fruits themselves would produce the same results. At least no conclusion as to their relative wholesomeness can be formed without comparing the results of exactly similar trials of the substances in question. A caution should be given regarding the substances pronounced practically harmless. The so-called ethers—such as amyl acetate, amyl formate, ethyl butyrate, etc., substances derived from the action of organic acids upon alcohols,—are meant. Not every substance which possesses the odor of fruit is to be classed among artificial fruit flavors. This would

include the deadly hydro-cyanic acid, commonly called Prussic acid, and nitrobenzene, both of which have the peach odor. Some of the artificial flavors are certainly identical in composition and properties with the natural flavors. In such cases, whatever may be said against the one applies with equal force to the other. And since there is great difference in the source of these flavors, no general rule can be given which will apply to all. Each one must be tested and stand on its own merits.—*Prof. Failyer.*

## Shall We Help the South?

After two or three weeks of discussion, the Blair Educational bill has passed the Senate; the two representatives from Kansas, with nine others, opposing the bill. The opponents of the bill urged that the difference between the North and the South is fundamental; that the South is given to call on the Government for what she should do herself; that she will never equal her grand possibilities until she exercises more self-reliance. Of course, we all understand that the people of the South have been engaged for some years in building up their society from the wreck of civil war. They have been as heroic and self-sacrificing as is possible for any people. The census of 1880 revealed a startling percentage of illiteracy. A new life—educationally—has taken possession of the people as a result of a knowledge of their low standard, compared with the North. Tax-riden as they have been, the sixteen Southern States paid out during 1885 more than \$15,000,000 toward the support of their schools. Most of the people realize their situation; but how inadequate are the means! They need every agency for the support of schools,—individual, corporate and local,—with all the aid that the National Government can be induced to give. With all the help that goes to the South, the people there should feel, however, that the success or failure must, after all, lie with them. A community that clings to its own money, and waits for national aid to educate its children, will surely remain in ignorance.

The children of the rich will not suffer for opportunities for an education. It is the poorer classes that need our help; and these classes are multiplying more rapidly in the South than in the North. To cast upon an ignorant class of people the responsibility of educating itself, is to declare that the State can grow in prosperity with such an element increasing at the bottom of society. The Southern people do tax themselves, and have as many privileges as could be expected; but what is the little that can be done by them, unaided, compared with what might be done with our help? Is it not the duty of the Government to lift its hand when so much is at stake? "Every State in the Union has endorsed the policy of National aid to education, over and over, by receiving and using such appropriations;" and the South may justly claim a portion for the education of the poor whites and blacks within its border.

The bill that just passed the Senate may not be what is desired. It seems extravagant, and beyond the needs of the South at present; but that does not lessen our responsibility. It is the duty of the Government, in conjunction with the States, to see that all of our children are given the privilege of an education.

The bill "provides that, for eight years after its passage, there shall be annually appropriated from the treasury the following sums, in aid of common school education in the States and Territories and

District of Columbia and Alaska: For the first year, \$7,000,000; the second year, \$10,000,000; the third year, \$15,000,000; the fourth year, \$18,000,000; the fifth year, \$11,000,000; the sixth year, \$9,000,000; the seventh year, \$7,000,000; and the eighth year, \$7,000,000, making \$79,000,000, besides which there is a special appropriation of \$2,000,000 to aid in the erection of school houses in sparsely settled districts, making the total fund \$81,000,000. The money is given to the several States and Territories in that proportion which the whole number of persons in each, who, being of the age of 10 years and over, cannot write, bears to the whole number of such persons in the United States, according to the census of 1880 until the census figures of 1890 shall be obtained, and then according to the latter figures. In States having separate schools for white and colored children, the money shall be paid out in support of such white and colored children between 10 and 21 years old. No State is to receive the benefit of the act until its Governor shall file with the Secretary of the Interior a statement giving full statistics of the school system, attendance of white and colored children, amount of money expended, etc.; number of schools in operation; number and compensation of teachers, etc. No State or Territory shall receive in any year from this fund more money than it has paid out the previous year from its own revenues for common schools. If any State or Territory declines to take its share of National fund, such share is to be distributed among the States accepting the benefits of the fund. If any State or Territory misapplies the fund or fails to comply with the conditions, it loses all subsequent apportionments. Samples of all school books in use in the common schools of the States and Territories shall be filed with the Secretary of the Interior. Any State or Territory accepting the provisions of the act at the first session of its Legislature after the passage of the act shall receive its pro rata share of all previous annual appropriations. Congress reserves the right to alter or repeal the act."—*Prof. Nihart.*

## Entering College.

Applicants for admission at the beginning of the year, in September, must be at least fourteen years of age, and able to pass a satisfactory examination in reading, writing, arithmetic including percentage and interest, geography and elements of English grammar. Those applying later in the term must show sufficient advancement to enter the classes already in progress. Every effort should be made to begin with the first of the term, in order to advance with the class from the first.

Applicants of mature age who, for lack of advantages, are unable to pass the full examination may be received on special conditions.

Applicants for advanced standing in the course must pass examination in all the previous studies of the class to be entered; but, if they have pursued such studies in other institutions of similar rank, they may receive credit for their standing in those institutions upon presenting a certificate from the proper officer, showing that their course has been equivalent to that given here.

## Board and Rooms.

No provision for rooms and board is made at the College. The students all find homes in families or in family boarding-houses, at rates varying from \$3.00 to \$4.00 a week for board with furnished room. Lists of boarding-places, with prices and accommodations, can always be had at the President's office, and students are required to notify the President of their rooms when selected.

Lists of rooms for rent without board may also be had by those who wish to board themselves. Directions and advice are gladly given by any of the officers.

## A Good Education Pays.

1. In dollars and cents. All testimony of statistics agrees in showing that educated laborers, of all ranks, have better work and better wages than the uneducated.

2. In influence and position. Careful estimates make it certain that the chances of promotion to places of trust and power among men are almost two hundred times as great to an educated man as to an uneducated.

3. In usefulness. The bulk of good work in the world,—discovery, invention, government, philanthropy and religion,—is brought about by those who learn to think by study.

4. In enjoyment. Our pleasures grow out of what we are ourselves more than from surroundings. A well-trained man sees, hears and handles a great deal more of the world than an untrained one. All things do him good, not so much because he owns them as because he understands them. He always has good things to think about.

## Industrial Arts.

*Industrial Arts.*—The training in these departments is designed to be systematic and complete in each, so that any student, following a single line diligently through a whole four-years' course, gains the essentials of a trade and a reasonable degree of skill. Those who wish only a general acquaintance with the arts can take shorter courses in several of them; but all are to select with definite purpose. In the established course, young men are required to take the regular term in the carpenter shop and on the farm and gardens whatever the industrial chosen. Young women are required to take one term in the kitchen laboratory and one in the dairy, though other industrials may occupy their course.

*Dairying.*—During the spring term, daily in instruction and practice in the different branches of dairying is given the ladies of the second year by the Instructor in Household Economy. A dairy, well equipped in modern appliances for the manufacture of butter and cheese, is connected with the Department of Household Economy. Here the regular dairy work is supplemented by a short course of lectures intended to explain the best practices in the art of butter and cheese making, and to give the reason therefor. The following topics cover, in the main, the instruction given the class: Influence affecting the quality and quantity of milk; butter making; the household and factory system of cheese making. Creameries: "deep" and "shallow" setting system; packing and preserving butter.

*Agriculture and Horticulture* are required of young men as industrials during one term of the second year and one term of the third year. In these, practice is made to illustrate and emphasize the teaching, and covers essentially the same ground.

*Carpentry, etc.*—On entering the shops, all take the same first lessons in sawing, planing and dressing lumber, making mortises, tenons and joints, and in general use and care of tools. Later, one who chooses a trade is provided with work directly in the line chosen; while the farmer's course provides for general training in a great variety of operations, rather for ingenuity than skill. In the full course of a carpenter, special instructions are given in the whole range of work, from framing to stair building. Carpentry is required of young men during one term of the first year.

In iron work, instruction is given in ordinary work, —forging, filing, tempering, etc.

*Printing.*—Two courses are pursued in this art. In one the student is taught the implements or tools employed in typography, and how to use them; composition; imposition; correcting proof; technical terms; presses and their workings; and the general duties of a first-class workman. Everyone is encouraged in studying the rise and progress of printing and related arts. Habits of accuracy and thoroughness are required in order to advancement. The second course of lessons, alternating with those of the first, embraces instruction in spelling, capitalization, syllabication, punctuation, proof-reading, preparation and criticism of essays, and such other work as will make the student accurate and expert in language. Wilson's Punctuation is the text-book; but much of the instruction is oral,—such as grows out of the every-day experience of the office.

Admirable drill is furnished by the INDUSTRIALIST to all, but especially to those who take the full course. The printing which the departments of the College require gives to the advanced student a fair knowledge of the principles and practice of job work.

*Telegraphy.*—The course of training involves for beginners the characters that compose the alphabet, and combinations of these characters into words and sentences—attention being paid to spelling and to short and precise expressions in messages,—abbreviations, signals, forms of messages, train orders, reports etc. To the more advanced is given regular line business, as press reports, messages, cipher messages, and orders in all forms used by prominent telegraph companies, together with the necessary book-keeping, upon exact copies of the blanks in actual use, thus giving the students an understanding of the work of an operator. A portion of the time is devoted to instruction in the management of lines, batteries, instruments, etc. The elementary principles of electricity, magnetism and electro-magnetism, involved in telegraphy, are taught and illustrated by experiments. The more recent inventions related to the art are discussed and explained. Pope's Handbook of the Telegraph is used as a text-book.

*Sewing.*—Young ladies are taught in all ordinary forms of sewing with needle and machine, and in cutting, fitting and trimming dresses and other garments. A straight-line system of cutting and fitting is taught, and systems are furnished to students at wholesale rates. They may furnish materials, and work for their own advantage during the hour of practice, under the direction of the Superintendent.

*Instrumental Music.*—Provision is made for the teaching of music upon instruments of all sorts. A full course upon the organ or piano extends over four years, including harmony and composition; but students may take lessons for a single term if they choose. The College furnishes the instruments for daily practice, but the instruction is paid for at usual rates.

## THE INDUSTRIALIST.

SATURDAY, MARCH 20, 1886.

### CALENDAR.

1885-86.

FALL TERM.—Sept. 10th to Dec. 18th.  
WINTER TERM.—Jan. 5th to Mar. 26th.  
SPRING TERM.—Mar. 29th to June 9th.

June 9th, Commencement.

Persons receiving the "Industrialist" need have no fear of bills to come; for the paper always stops with the expiration of subscriptions, unless continued by favor of a friend or of the College.

### BONDS WANTED.

School District bonds issued on College blanks will bring their par value at once. Address T. P. Moore, Holton, Jackson Co., the College Loan Commissioner.

The next meeting of the Board of Regents will be on Tuesday, April 6th.

Hon. John Richey, of McPherson county, an old-time friend of the College in the Legislature and out, made his first visit to the College early in the week.

The Faculty have assigned Profs. Shelton, Popenoe and Lantz and Mrs. Kedzie for duty at the WaKeeney Farmers' Institute, to be held on Thursday and Friday of next week.

On Thursday of next week the Webster Literary Society exhibits in the College Chapel. An excellent programme has been provided, which will doubtless be executed in good style.

Two very wet volumes of the Journal of the Royal Microscopical Society were received by the Library on Friday. These books had been fished out of the hold of the ill-fated steamer Oregon.

That worst-abused man and hardest-worked official, Dr. Holcombe, State Veterinarian, gave us much valued professional advice in the course of a visit which he paid us on Wednesday.

Mr. Schwartz, the inventor and patentee of a feed-cooker, came up from his home in Pottawatomie county, on Thursday, and set up one of his cookers—which, by the way, is a donation to the Farm—at a point near the piggery.

The Manhattan Horticultural Society at its meeting yesterday unanimously resolved to ask the Manhattan city council to give to the horticultural interests of the city permanent protection from the cow nuisance, and instructed its secretary to communicate with the city dads in the matter.

We failed to state last week, through an inadvertence, that the public hour was occupied by Prof. Lantz, who gave a lecture, taking for his theme "The Life of Charles Lamb." We had not the pleasure of listening to this lecture, and so are forced to content ourselves with hearsay evidence, which is unanimous in the expression that the lecture was a good one.

A prominent firm of stock-breeders (Springer Bros.) of Springfield, Ill., write us of the note in reference to cheap freight which appeared in the INDUSTRIALIST of last week, something of their own experience in this line. They say in substance: We shipped a Jersey bull 11½ months old 30 miles for \$1.30, having had the use of a whole car nearly twenty-four hours.

Mrs. Kedzie and the young ladies of the class in cooking entertained the young men of the second-year class on Thursday evening, in the handsome apartments belonging to the department of Domestic Economy. By all accounts, an "awfully jolly" time was had. The boys, to a man, own their unalterable faith in the cooks and the cooking, the Domestic Department and the domestic state in general.

Our photographer, Mr. Burgoyne, came up with a back load of apparatus on Tuesday, and succeeded in catching the "shadows" of a great variety of objects on the Hill,—views of class-rooms, apparatus, laboratory, greenhouses, and last, but not least, the "College Cadets" all in a row and headed by their gallant commanders. These views, we should have said, are designed for use at the coming meeting of the National Teachers' Association.

It is our mournful duty to say that the damages done by the late Arctic winter have not been limited to the wheat crop: our orchard-grass has been badly injured, not in the complete sense in which the wheat crop

has been destroyed, we hope; but that the damages in this direction have been great, we have every reason to believe. We prefer to see ten acres of our wheat destroyed rather than one acre of our unequalled orchard-grass meadows.

We suppose that most people who listened to President Fairchild's very pertinent "personal" remarks on Monday morning saw their precise application—to some other person. That the President's talk was taken home by some, we are assured from one fact at least: it has since been possible for one to walk the length of the corridor without getting "snarled up" in the horribly-banged and befrizzled tow-hair which adorns (?) the heads of certain young lady students.

The momentous question has at last been decided! Every one of the twenty-two members of the Class of '86 are to appear on Commencement day, with their oratorical wings clipped, however, to this extent: the limit of the speeches has been placed at four minutes. These four minutes will not allow the graduate to tell all he knows of Grecian mythology, Mediæval history, progress, or even of farming, but it is ample time in which to state, concisely, opinions which have been carefully formed as the result of study and reflection.

The Arbor Day proclamation seems now to be in Kansas one of the regular official emanations from the State Executive. In the Arbor Day proclamation for 1886 just received Gov. Martin states that the "planting and growth of trees has \* \* increased the rainfall," an opinion which the Governor shares with many practical and some scientific men. It is only fair to say, however, that this idea is strongly combated by many of the most zealous students of meteorology. The Governor names April 1st as the holiday for tree-planting, and furnishes good reasons for the belief that this will not be a fool's day to those who plant trees.

Two groups of photographs, one representing more or less the lineaments of the present Kansas State Senators and the other the members of the House of Representatives and Senators together, have been received from the photographer, a Topeka artist. According to these photographs, our Kansas law-givers are, to put it mildly, a very "ornery"-looking crowd; and if we did not know that our State Solons in general, and the representatives from this section in particular, are remarkable for physical beauty, we should certainly gather a very unfavorable impression of them from the big pictures which now beautify (?) the President's office. We wonder if the artist did not strike for an appropriation last winter and fail to get it?

### COLLEGE SOCIETIES.

ALPHA BETA.—Chartered, December 26th, 1870. Meets in the Society Hall every Friday at 2:30 P. M. Ladies admitted. New students cordially invited to attend.

A. M. GREEN, President

MISS IDA QUINBY, Secretary.

WEBSTER.—Chartered, January, 1871. Meets in Society Hall every Saturday evening. Visitors, especially students, always welcome.

D. G. ROBERTSON, President

F. H. AVERY, Secretary.

SCIENTIFIC CLUB.—Meets on first Friday evening of each month. Composed of members of the Faculty and advanced students. Devoted to the improvement of its members in general scientific knowledge, and the encouragement of original investigations.

PROF. WALTERS, President

C. F. GOSS, Secretary.

HAMILTON.—Chartered January 29th, 1885. Meets every Saturday evening. Admits gentlemen only. Visitors always welcome.

G. W. WATERS, President

C. F. GOSS, Secretary.

The Y. M. C. A. meets at 3:30 P. M. Sunday.

D. G. ROBERTSON, President

C. A. MURPHY, Secretary.

The Y. W. C. A. meets Thursday afternoon.

F. HENRIETTA WILLARD, President

NELLIE COTTRELL, Secretary.

### REPORTS.

SOCIETY HALL, March 19th, 1886.

Promptly at 2:30 o'clock P. M., the Alpha Beta Society was called to order by President Green. Ada Little, Ida Quinby and H. A. Platt sang the trio, "O Restless Sea," F. Henrietta Willard, organist. Prayer was offered by M. A. Carlton. F. A. Marlatt was elected a member of the Society. W. E. Phipps then gave a recitation; and E. O. Sisson read an essay on "Benefits of Debate." Has public opinion greater influence on society than law? was the gist of the question for debate. Nellie and

Mary Cottrell were the debaters on the affirmative, and Winnie Brown and Clara Coffey on the negative. The judges decided in favor of the negative. H. W. Jones was editor of the *Gleaner*. A solo,—"Pass under the Rod," sung by Nellie Cottrell, Ada Little accompanying, was the sweetest music we have heard in a long time. Extemporaneous speeches and business occupied the time till adjournment, at which time more than sixty persons were in the Hall.

SUB.

SOCIETY HALL, March 13th, 1886.

President Robertson called the Websters to order. Few members were present when the meeting was called—probably an indirect result of land-lady oppression. By the time the orders of roll-call and devotion had been passed, the Websters had arrived in their usual good numbers; many visitors were present. Messrs. W. J. Burtis and J. Harrison, in opposition to Messrs. J. L. Wise and G. Winslow, attempted to prove that the officers of the U. S. army should be chosen from the ranks. The judges rendered their decision in favor of the latter gentlemen. Declamations were well given by R. Browning and L. O. Piper; essay by M. H. Meyer; reading, A. N. Avery. Recess: after which the *Reporter* was presented by E. H. Snyder. J. W. Shartel, an old and highly-esteemed member of the Society, was asked to speak. His words called forth the same true interest that they used to when he was one among us. Our old Alpha Beta friend, Mr. Lund, being present, was not overlooked when the visitors were called on.

TEDDY.

SOCIETY HALL, Mar. 13th, 1886.

The Hamilton Society came to order at the call of President Waters. Roll-call showed a large attendance, owing to the extreme mild weather; however, the roads were somewhat muddy. Mr. Hammerli led in prayer. The following question, "Resolved, That John Brown's raid from Kansas to Harper's Ferry should not be condemned by the people of the United States," was debated by A. F. Newman and G. V. Johnson on the affirmative and N. E. Lewis and R. A. Cady on the negative. Some excellent argument was presented on both sides. The affirmative portrayed John Brown as being one of the noblest men the world has ever known, raising him to a stratum of action higher than any to which man had ever before attained. The negative represented him as being a renegade, and held that his name should be obliterated from the pages of history. The discussion was indeed very animated. The negative were somewhat humiliated at the unanimous decision of the judges in favor of the affirmative. An intermission of ten minutes was granted. Immediately after recess, W. Van Zile read an essay on the history of gunpowder; declamation by C. O'Harrow; A. Walters then presented the *Recorder*. Following this was a declamation by F. A. Campbell, select reading by E. H. Perry, instrumental solo by J. A. Campbell. The term of office of the committee for the preparation of questions for extemporaneous speaking had expired, and a new one consisting of A. E. Newman, S. S. Cobb, S. Snyder, H. H. Myers and Mr. Dinsmore, was elected in their stead. At the request of Prof. Canfield, his lecture will be given on the evening of the 23d of April instead of the 24th, as was previously announced. The order of extemporaneous speaking was passed on account of business before the Society.

ALE.

Labor.

Every encouragement is given to habits of daily manual labor during the College course. Only the one hour of daily practice in the industrial departments is required; but students are encouraged to make use of other opportunities for adding to their ability and means.

The College employs students, when possible, on the farm and in the gardens, shops and offices, paying wages varying in rate with accomplishment from eight to ten cents an hour. All labor at the College is under the direction of the Superintendents of the departments, and offers opportunity for increasing skill and efficiency. In regular weekly statements, the students are required to observe business forms and principles, showing from their daily account when and where the work was performed. A few students who have shown especial efficiency are employed during the summer vacation.

The shops and offices are open afternoons and Saturdays for the accommodation of skilled students in work for their own advantage. Everywhere the student who works wins respect; and it is a matter of pride to earn one's way as far as possible.

### Objects.

This College now accomplishes the objects of its endowment in several ways.

First, it gives a substantial education to men and women. Such general information and discipline of mind and character as help to make intelligent and useful citizens are offered in all departments, while the students are kept in sympathy with the callings of the people.

Second, it teaches the sciences applied to the various industries of farm, shop and home. Chemistry, botany, entomology, zoölogy and mechanics are made prominent means of education to quick observation and accurate judgment. Careful study of the minerals, plants and animals themselves illustrates and fixes the daily lesson. At the same time, lessons in agriculture and horticulture show the application of science; and both are enforced by actual experiment.

Third, it trains in the elements of the arts themselves, and imparts such skill as to make the hands ready instruments of thoughtful brains. The drill of the shops, gardens, farm and household departments is made a part of a general education to usefulness, and insures a means of living to all who make good use of it. At the same time, it preserves habits of industry and manual exertion, and cultivates a taste for rural and domestic pursuits.

Fourth, it strives to increase our experimental knowledge of agriculture and horticulture. So far as means and circumstances permit, experiments are undertaken with a view to more definite results than ordinary experience can give. By this method the students themselves are trained to a more accurate observation and judgment in these practical tests of principles in farming.

Fifth, it seeks to disseminate such practical truths as have stood the test of scientific inquiry. For this purpose it publishes the *INDUSTRIALIST*; and its officers share in debates and consultations of farmers and horticulturists throughout the State. Each winter a series of six Farmers' Institutes is held in as many different counties of the State. In these the Faculty share with the people in lectures, essays and discussions upon topics of most interest to farmers.

### MANHATTAN CARDS.

#### Manhattan Hotels.

Cottage Hotel, \$1.00 per day.

Commercial House, \$2.00 per day.

#### George Firestone.

Livery, Feed and Sale stable. East end of Poynz Avenue.

#### Higinbotham, Stingley & Huntress.

Merchants, proprietors Blue Valley Mills Manhattan, Kansas.

#### Burgoyne's.

Photograph Gallery. Established, 1859. Opposite Purcell's Bank.

#### Clother.

Wm. Knostman, Ready-made Clothing, Hats, Caps, and Gents Furnishing Goods. Opposite postoffice.

#### Fox's Book Store.

COLLEGE TEXT-BOOKS, School Stationery, Pencils, Ink, Scratch-books, etc., etc. Manhattan, Kansas.

#### Manhattan Clothing House.

Best goods and best prices. Boys, come and see us, opposite Purcell's.

LEMMON & KOLLER.

#### Barber Shop and Bath Rooms.

In basement room opposite Purcell's. This is the place to get a good easy shave, a first-class hair cut, and a good, clean bath. Satisfaction guaranteed. Don't forget the place, but give me a call and be convinced.

P. C. HOSTRUP, Proprietor.

#### Allen Bros.

Opposite the Postoffice, keep a full line of Groceries, Flour, Fruits, Candies, Nuts, etc. Their goods are fresh and first-class, and prices are low and *ten per cent off for spot cash*. Goods delivered free in any part of the city and on College Hill. We invite all to call, and we will endeavor to give satisfaction.

ALLEN BROS.

#### Manhattan Bank.

M. E. B. Purcell, banker. J. W. Webb, cashier. A general banking business transacted. Bills of Exchange issued on all principal cities and towns of Europe. All collections have personal, faithful and prompt attention of our attorneys. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

#### E. B. Purcell,

Corner of Poynz Avenue and Second St., has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, &c., &c., &c. Goods delivered in all parts of the city, and at the College, free of charge.

### Kansas Educational Notes.

PROF. J. D. WALTERS.

Arkansas City will soon have another school building, which will cost \$9000.

The Topeka *Capital* complains: "The late Legislature passed an act for the protection of society against a class of persons who should be outlawed by every decent citizen, and yet it has been brought to the attention of the law officers of the county that on last Wednesday the law was violated. As the children were wending their way to Major Whittle's afternoon meeting for young folks, certain persons were distributing free gratis to girls and boys alike copies of books containing stories of bloodshed and crimes. It was noticed that the younger boys threw them down, while the older boys and misses carefully pocketed them."

The first section of the act referred to is as follows: SEC. 1. Every person or persons who shall bring or cause to be brought into the State, or shall buy, sell or cause to be sold, or shall advertise, lend, give away, offer, show, exhibit, or shall have in his possession with the intent to sell, lend, give away, offer, show, exhibit, distribute, or shall cause to be distributed, or shall design, copy, draw, photograph, print, etch or engrave, cut, carve, make, publish, or otherwise prepare or assist in preparing, or shall receive subscriptions for any indecent or obscene book, pamphlet, paper, picture, print, drawing, figure, image, or other engraved, printed or written matter, or any article or instrument of immoral use, or any book, pamphlet, magazine or paper devoted principally or wholly to the publication of criminal news or pictures or stories of deeds of bloodshed or crime, shall be guilty of a misdemeanor, and upon conviction thereof shall be fined not less than five nor more than three hundred dollars, or to be imprisoned not to exceed thirty days, or both.

### How Artistic Operations are Conducted in the Chicago Public Schools.

Since the commencement of the present year several novel exercises have been introduced into the lower grades of the public schools. One of them is called by the various superintendents and special teachers in the department of fine arts "modeling in clay," but the children who have been compelled to lay aside their readers, spelling books and arithmetics for the purpose of engaging in this new occupation call it "making mud pies." A few little girls belonging to the best families, who never have an opportunity to play in the mud of our gutters, enjoy the sport hugely; but most of the other children, especially the boys, have a sublime contempt for it.

A visit to a school where the plastic art is practiced will show how operations are conducted. At a given time all books, slates and papers are removed from the desks, and each pupil is furnished with a paper plate, a lump of soft mud, a string, pencil, knife and several short sticks. The teacher, with a manual before her, takes a small lump of mud in her hand, and proceeds to fashion it in the form of a marble, which she informs her pupils is a sphere. Her pupils then follow her example, and present their balls of mud for examination. If they are nearly round, they are directed at a given signal to slap the soft ball with the palm of the hand, and to construct an isosceles triangle or an equilateral triangular prism. While engaged in this operation, their minds are presumed to recall, if their mouths do not utter, the words of one of Mother Goose's melodies.

After the pupils have been taught to form spheres, cylinders and ellipsoids out of clay, they are expected to bring apples, bananas, tomatoes, cucumbers and other fruits and vegetables to school and to reproduce their forms in plastic mud. They are also to make models of muffs, rolling-pins, stove-pipes and street-rollers. Another new exercise introduced in schools is that of "baying sticks," or, as the children call it, "playing with jack-straws." Still another one is that of "folding paper" or, in the language of the pupils, "making paper dolls." The drill in "playing with jack-straws" and "making paper dolls" is expected to precede or follow that of "making mud pies." The manual calls for a drill in each of these exercises every day.—*Chicago Times.*

### The Oratorical Contest.

The third annual contest of the Kansas State Oratorical Association was held at the Grand opera house in Topeka Friday evening.

By the noon trains large delegations from Lawrence, Emporia, Baldwin City and Ottawa arrived, and at four o'clock fully 250 students from the various colleges were in the city.

At 8:15 the parquette and balcony of the Grand opera house were crowded to their utmost capacity. The stage was fittingly set, and the various contesting representatives occupied seats thereon.

The upper four boxes were occupied by representatives of Yale and Harvard.

The judges were Chief Justice Horton, Hon. C. W. Blair and Hon. J. R. Burton.

The exercises of the evening were opened by invocation by Dr. F. S. McCabe.

A male quintette next rendered "We Meet again Tonight."

Mr. Ingalls, of Washburn College, president of the State association, formally opened the contest by giving a short history of the organization of this association. He stated it was merely a friendly contest for oratorical supremacy, and that the winner should have the honor of representing Kansas in the Northwestern Inter-State contest.

The annual contest of this Inter-State association will be held Thursday, May 6th, at Lawrence.

E. M. Randall, Jr., of Baker, was the first orator of the evening. His subject was "Martin Luther."

The second orator of the evening was Ewing Herbert, of Emporia College. He took for his subject "A Neglected Portion of History."

After some vocal music by a female quartette, Miss Sue D. Hoaglin, of the Emporia Normal, delivered an oration on the "Mission Flower."

Charles A. Greenless, of Washburn College, chose for his subject "Independence of Thought."

When the name of Cyrus Crane was announced as a representative of the State University, it was received with that boisterous applause which indicated that he had many friends among the audience. "Individual Men and the Masses" was the subject of his oration.

The last oration of the evening was delivered by Miss Alice Boomer, of Ottawa University, upon the question, "Has Christianity benefited Women?"

Some time elapsed before the opinion of the judges was given, but the following result was finally announced:—

First prize—Cyrus Crane, State University.

The prizes were presented by Judge Horton with a few explanatory remarks, and thus closed the third annual contest.—*Excerpts from several papers.*

### Grounds and Buildings.

The farms, with the stock, orchards, gardens, vineyards, forestry and ornamental grounds, are used for experiment and illustration. All that is not strictly experimental is managed with a view to highest economy and profit.

On the larger of the farms, upon an elevation at the western limits of the city of Manhattan, and facing toward the city, are the College buildings. All are of the famed Manhattan limestone, and surrounded by pleasant-ly-arranged and planted grounds.

College, 130 by 250 feet in extreme dimensions, arranged in three distinct structures, with connecting corridors. This building contains in its two stories and basement, offices, cloak-rooms, studies, chapel, library, reading room, model kitchen and dairy, sewing rooms, society rooms and ten class rooms.

Chemical Laboratory, one story, 38 by 90 and 46 by 75 feet of floor space, in form of a cross. It contains eight rooms, occupied by the Department of Chemistry and Mineralogy.

Mechanics' Hall, 39 by 103 feet, of two stories, occupied by the Carpenter shop and finishing room, Telegraph and Printing offices, and Music rooms.

Horticultural Hall, 32 by 80 feet, one story and cellar, having cabinet room, class room work room and storage, with greenhouse attached.

Two stone dwellings, occupied by the President and the Professor of Agriculture.

Armory Hall, 46 by 96 feet, and two stories. This building, which has served many purposes, is now to be fitted for armory and drill room below, and for class room, laboratory and museum of the Department of Natural History.

The barn is of stone, 48 by 96 feet, with side-bill basement stables, granary, tool-room, etc.

The blacksmith shop, piggery, implement shed, and various out-buildings, are of wood.

### General Duties and Privileges.

General good conduct, such as becomes men and women anywhere, is expected of all. Every student is encouraged in the formation of sound character by both precept and example, and expected "upon honor" to maintain a good repute. Failure to do so is met by a prompt dismissal. No other rules of personal conduct are announced.

Classes are in session every week-day except Saturdays, and no student may be absent without excuse. Students enrolled in any term cannot honorably leave College before the close of the term, unless excused beforehand by the Faculty. A full and permanent record of attendance, scholarship and deportment shows to each student his standing in the College. After each monthly examination a report of advancement is made to parents; and any student, upon leaving College at the close of a term, may receive a certificate of standing.

Chapel exercises occupy fifteen minutes before the meeting of classes each morning, and unnecessary absence from them is noted in the grades.

Twice in each month the whole body of students gather for a lecture from some member of the Faculty, or for the rhetorical exercises of the third and fourth-year classes. On alternate weeks all the classes meet at the same hour, in separate class-rooms, for exercises in elocution and correct expression.

There are three prosperous literary societies, two of them of many years' standing. All meet weekly, in rooms set apart for their use. The *Alpha Beta* is open to both sexes, and holds its meetings Friday afternoons. The *Webster* and the *Hamilton* admit to membership gentlemen only, and meet on Saturday evenings.

The Scientific Club, composed of members of the Faculty and students, meets in the Chemical Laboratory on the first Friday evening of each month.

Every Friday evening a students' prayer meeting is held in a College Society Room, led by a member of the Faculty. On the Sabbath students are expected to attend services at least once in the different churches of the city.

Occasionally during each term the College Hall is opened for a social gathering of faculty and students, in which music, literary exercises and friendly greeting find place.

Public lectures by prominent men of the State are provided from time to time, as opportunity offers. All are free.

The Manhattan Horticultural Society meets monthly, and other farmers' associations occasionally, at the College, and the students have the privilege of attending these meetings.

### Means of Illustration.

Two farms of 171 and 100 acres, for the most part surrounded by durable stone walls, subdivided into fields of variable size to suit the system of management.

A large variety of standard experimental grains in cultivation in fields and experimental plots.

A well-planned barn for grain, hay, horses and cattle; and a piggery of six pens, with separate yards.

Shorthorn, Aberdeen-Angus, Galloway and Jersey cattle; Berkshire, Poland-China, Jersey Red and Essex swine.

Farm implements of improved patterns.

Collections of grains, grasses and forage plants.

Orchards, containing 275 varieties of apples, 80 of peaches, 50 of pears, 16 of plums, 20 of cherries and 10 of apricots.

Small-fruit garden, with 200 varieties of small fruits, including blackberries, raspberries, gooseberries, currants and strawberries; and vineyard with 100 varieties of grapes.

Forest plantation of twelve acres, containing twenty varieties of from ten to fifteen years' growth.

Ornamental grounds, set with a variety of evergreen and deciduous trees. Sample rows, containing 150 varieties of ornamental and useful shrubs and trees, labeled.

Vegetable garden, with hot-beds and cold-frames and experimental beds. Practice rows for students' budding, grafting, cultivating and pruning.

A well-planned and furnished greenhouse of three rooms, stocked with a collection of native and exotic plants.

Chemical laboratory, with eight rooms, fitted with tables and apparatus for a class of eighty students; also, physical apparatus, meteorological instruments, and apparatus for advanced chemical work and assaying.

Models, plaster casts and patterns for drawing, and charts for illustration.

Botanical museum, containing a good herbarium, fairly representing the flora of the United States; a collection of native and foreign woods, seeds, nuts, dry fruits; a collection of abnormal wood growths.

Mineral and geological cabinets, including collections of Professor Mudge; a representative collection of the ores of Colorado, New Mexico and Arizona.

Zoological museum, containing a typical collection of birds and mammals, mounted; a cabinet of bird skins, eggs and nests; a good collection of reptiles and fishes in alcohol; a large series of land, fresh water and marine shells; a good representation of the insects of this locality, and a collection of invertebrates in alcohol.

Mathematical instruments, — compasses, transit, levels, chains, for field work.

Carpenter shop, with separate benches and tools for thirty students in each class, besides lathes, mortising machine, and general chest of tools for fine work.

Shop for iron work, with forges, vises, drill, etc.

Printing office, with twenty-five pairs of cases, a good assortment of body and job type, a Country Babcock press, a quarto jobber, and a paper cutter.

Telegraph office, with six miles of line, connecting thirty-two branch offices, and as many instruments, and a Remington type-writer.

Sewing rooms, with five machines, models and patterns.

Kitchen laboratory, with ranges, cooking utensils, dining-room furnishings, creamery and dairy furniture.

Musical rooms, with four pianos, three organs, and other instruments.

A library, carefully selected and catalogued, containing 6,000 volumes. A reading room is maintained in connection with the Library, where may be found on file forty-five of the leading literary, scientific, technical and agricultural periodicals, and several hundred newspapers, including the principal daily and county papers from all parts of the State.

Armory, containing one hundred stand of arms (breech-loading cadet rifles, calibre .45) with accoutrements.

### Earnings.

The labor of the students in the industrial departments is principally a part of their education, and is not paid for unless the student is employed—outside of required hours of labor—upon work for the profit of the College. Students are so employed upon the farm, in the gardens or the shops, and about the buildings. The labor is paid for at rates, varying with service rendered, from eight to ten cents an hour. The Superintendents strive to adjust their work to the necessities of students, and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly pay-roll for the past year ranges from \$377 to \$456.

Many students obtain work in the city or upon neighboring farms, and so pay a part of their expenses. Students employed in the shops are allowed to work somewhat for their own profit, in the manufacture of articles for sale and use. In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide by earnings outside of term-time, or from other sources, for the larger part of their expenses. The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education if he has the ability to use his chances well.

### General Course of Study.

Each student is expected to take three studies besides one hour's practice in an industrial art; and variation from this rule can be only with consent of the Faculty.

Parallel courses are offered to both sexes with such differences as their necessities seem to call for. The following gives the general scope of the two; but fuller explanations are found in the annual catalogue.

FIRST YEAR.	SECOND YEAR.	Arithmetic.	
		FALL TERM.	WINTER TERM.
		Book-keeping, Drawing.	English Analysis.
		English Structure.	Geometrical Drawing.
		United States History.	
SPRING TERM.		Algebra.	
		English Composition.	Botany.
		Algebra completed.	
		Elementary Chemistry.	Horticulture.
		14 Lectures in Military Science.	
WINTER TERM.		Geometry.	
		Practical Agriculture	or Household Economy.
SPRING TERM.		Organic Chem. and Mineralogy.	12 Lectures in Military Science.
		Geometry completed, 5 weeks.	
FALL TERM.		Drawing, 5 weeks.	Entomology.
		Analytical Chemistry.	
WINTER TERM.		Trigonometry and Surveying.	
		Physiology.	General History.
SPRING TERM.		Mechanics.	
		Agricultural Chemistry.	Rhetoric.
FALL TERM.		Civil Engineering.	
		Drawing, (or Hygiene).	Chemical Physics.
WINTER TERM.		English Literature.	
		Agriculture or Literature.	
SPRING TERM.		Meteorology.	
		Psychology.	
FOURTH YEAR.		Logic, Deductive and Inductive.	
		Zoology.	Structural Botany.
FALL TERM.		Geology.	
		United States Constitution.	Political Economy.

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### COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

College Lands and all business connected with their sale are in charge of the Land Agent.

Bills against the College should be presented monthly, and, when audited, are paid from the office of the Treasurer, in Manhattan.

All Payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka.

The *INDUSTRIALIST* may be addressed through Prof. E. M. Shelton, Managing Editor. Subscriptions are received by Supt. Geo. F. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Kellerman, chairman of the committee on Museums.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding places, etc.,—may be obtained at the office of the President or by letter.

### Scientific Growth.

Professor Huxley, in his presidential address before the Royal Society last November, said that "of late years it has struck me, with constantly increasing force, that those who have toiled for the advancement of science are in a fair way of being overwhelmed by the realization of their wishes. It has become impossible for any man to keep pace with the progress of the whole of any important branch of science. If he were to attempt to do so, his mental faculties would be crushed by the multitudes of journals and of voluminous monographs which a too fertile press casts upon him. This was not the case in my young days. A diligent reader might then keep fairly informed of all that was going on, without robbing himself of leisure for original work, and without demoralizing his faculties by the accumulation of unassimilated information. It looks as if the scientific like other revolutions meant to devour its own children; as if the growth of science tended to overwhelm its votaries; as if the man of science of the future were condemned to diminish into a narrower and narrower specialist as time goes on.

"I am happy to say that I do not think any such catastrophe a necessary consequence of the growth of science; but I do think it is a tendency to be feared, and an evil to be most carefully provided against. The man who works away at one corner of nature, shutting his eyes to all the rest, diminishes his chances to see what is to be seen in that corner; for, as I need hardly remind my present hearers, that which an investigator perceives depends much more on that which lies behind his sense organs than on the object in front of them.

"It appears to me that the only defense against this tendency to the degeneration of scientific workers lies in the organization and extension of scientific education in such a manner as to secure breadth of culture without superficiality; and, on the other hand, depth and precision of knowledge without narrowness."

### Aluminum.

A correspondent of the Pittsburgh *Dispatch* discourses thus pleasantly about a metal which he thinks is destined to revolutionize the industrial arts:

"The metal of the future," said a prominent mechanical engineer to me, "is aluminum. In a few years it will displace iron and steel, and simply revolutionize industrial art everywhere. The millennium will be the age of aluminum."

"But," said I, "iron is the commonest of all metals, and aluminum is comparatively rare. Is there enough aluminum in the world to take the place of iron?"

"Yes," said he; "and your former assumption is an error. Aluminum is the most plentiful of all metals. The world contains ten times as much of it as of iron. It is everywhere. Each clay-bed is an aluminum mine."

"What is the reason?" I asked, "that it has not already come into general use?"

"The great cost of producing it," he replied.

"The metal called sodium is used in the production of aluminum, and it is very expensive. Numberless methods have been tried, and hundreds of chemists all over the world are devoting their lives to the task of finding a cheap way of producing aluminum. The man who succeeds will be more fortunate than if he had found the philosopher's stone. Whoever can produce aluminum at one dollar a pound will make a fortune, while a man who can make it for twenty-five cents a pound can buy out the Rothschilds in a day."

"What is the cost of aluminum now?"

"The raw materials for making it are not worth twenty dollars a ton—that is, twenty dollars for enough to produce a ton of the metal; but a ton of aluminum, perfectly manufactured, is worth twenty thousand dollars."

"What are the valuable properties of aluminum?" I asked, "and to what use can it be applied?"

"It can take the place of almost every other metal in the world," said he, "and very largely that of wood also. In the first place, it is very strong. Its tensile strength is more than three tons to the square inch greater than that of the best Bessemer steel. In fact, it is by far the strongest metal known. A cannon made of it would be three times as strong as one made of steel or gun metal. It is very stiff and rigid too—three times as rigid as the best of bronze. Another important thing is that it will not tarnish. Neither air nor water nor salts nor acids nor corrosive gases have the slightest effect upon it. Neither does intense heat change its color. It is the best conductor of heat known in the world; also of electricity. It would make the best telegraph wires in the world, having twice the conducting power of copper with only a third of its weight, and lasting practically forever. It is very ductile, and can be drawn into wire more easily than any other metal. Moreover, it is easily worked, cold or hot. It is suitable for anything that iron or steel or copper or brass or bronze or gold or silver is used for, from the wheels of a watch to a monster steam-engine."

"How does it compare in weight with other metals?"

"It is far the lightest; lighter, indeed, than many hard woods. It is little more than one third the weight of cast-iron. To be exact, a cubic foot of aluminum weighs only 166 pounds. The same sized block of cast-iron weighs about 451 pounds; of wrought-iron, 487 pounds; of copper, 554½ pounds; of lead, 709 pounds; of brass, 528 pounds; and of gold, about 1200 pounds. In brief, it is the lightest, easiest-worked, strongest, most durable, and generally the most valuable, of all metals; and the man who invents and patents a method of making it cheaply will revolutionize industry, and become the richest man in the world."

### Sparks and the Land Office.

Hon. E. Washburn, in his letter to the Chicago *Tribune*, fully endorses the action and rulings of Commissioner Sparks; of the latter he says: "They are substantially just in accordance with law." Of the past management of the General Land Office, he says:

"The General Land Office, for the last fifteen or twenty years, has, according to my judgment, been the most corrupt department that ever existed in any government on the face of the earth."

For years and years the land jobbers and the land grabbers seemed to have had full sway there, and it was quite time they were rooted out. And I am glad to find that an Illinois man like Mr. Sparks has

had the courage to attack these stupendous abuses and to attempt to recover for

the benefit of the people at large some

portion of the public lands which have

been obtained from the Government by

the railroad companies. I hope that his

hands may be strengthened and that he

will continue in the course which he has

laid out for himself. Some say that a

pressure has been made upon the Presi-

dent and upon the Secretary of the Inter-

ior, Mr. Lamar, and that it will be

necessary for him to be removed. It is

impossible to believe that such can be

the case; that an honest, faithful and in-

corruptible public officer should be

hounded out of his place by the men

whose action he has exposed and who is

making such laudable efforts, as I think

he is, to get back for the government

hundreds of millions of acres of public

lands which have been literally filched

from it by the land-grant railroads."

Language like the above, says the *Farmers' Review* coming from such a source, and from one who has neither personal or political relations with Commissioner Sparks,—for Mr. Washburn in his letter says: "I have no acquaintance

with Mr. Sparks, and have never seen him, and, politically, we are as far apart as it is possible for two men to be,"—ought to go a long way in counteracting the clamor that has been raised against Commissioner Sparks's action.

### Our Exchanges.

Paola is now lighted with natural gas from a well 310 feet deep.

Those of our Kansas farmers who raised broom-corn last season, and held it until about the first of January, received from \$125 to \$175 per ton, nearly twice as much per ton as they ever received. Broom-corn at \$125 per ton will pay fully as well as corn at twenty cents per bushel. All received above this amount is profit.—*Eldorado Republican*.

There are twenty-seven railroads in Kansas—railroads in name; but they are owned and operated by the three great systems of the West, as follows: The Atchison, Topeka & Santa Fe owns and operates twelve of them, the Union Pacific owns and operates nine of them, and the Missouri Pacific six of them. There is not a single railroad in Kansas—not a foot of road—operated by a local company.—*Atchison Globe*.

Frank Beams, living east of town, reports that on the 7th of January, 1886, several of his hogs were buried under a snow bank, and, after several weeks, were given up for dead; but on Wednesday of last week the hogs made their appearance, looking lank and lean, it is true, but still alive, after undergoing a fifty-four-days fast. This seems almost incredible; but as Mr. B. is a man of unquestioned veracity, we conclude that the story is true, and can account for it only by presuming that he has an extraordinary tough lot of hogs.—*Burr Oak Herald*.

Many farmers in this vicinity have used corn for fuel during the entire winter. It is much more clean, and by many considered as cheap as the soft coal for which it is substituted. While to the Eastern-bred Yankee this use of corn must ever cause a twinge of regret, as he thinks of the many weary days he has bent his back over a dull hoe coaxing a scanty yield of the yellow cereal, it is a question whether corn is not the most economical and best fuel for the sparsely-timbered prairie regions far removed from worked coal beds or railroad facilities.—*Cloud County Kansan*.

A prairie dog trap is ingenious. Place a headless barrel over the prairie dog's hole, and half fill it with fine sand. The little burrower will soon scratch his way to the top of the same. But the fine sand falls into the hole and fills it up, and it cannot dig another through the half-fluid particles, neither can he climb up the sides of the barrel. All he can do is to reverse the familiar lines of Virgil, and exclaim: "The ascent to the upper air easy, but to recall one's steps and re-enter Avernus, how hopeless the attempt!" This is without doubt the way in which the prairie dogs in Central Park were captured.—*Jamestown Kansan*.

The time is approaching now when the careful teamsters will need to be on their guard against sore shoulders and necks on their horses and mules. See that the collars are kept clean; and if they have become hard, beat them limber before making your horses work in them. Wash the sweat off from their shoulders after a hard day's work. If there is an inclination to soreness in any spot, relieve it by cushioning around the spot. Were such means more practiced, these faithful beasts would be subjected to far less cruel suffering than they now are forced to endure by brutal owners. Many a balky horse became so through being worked with a sore neck. Be merciful to the faithful horse and his patient co-worker the mule.—*Kansas City Live-Stock Indicator*.

# THE INDUSTRIALIST.

SATURDAY, MARCH 27, 1886.

EDITED BY THE FACULTY.  
E. M. SHELTON, MANAGING EDITOR.

## Purify the Press.

A striking example of public indifference to gross violation of common right, as well as of law, is afforded by the continued support, without protest, of newspapers and periodicals, professedly designed for household reading, that admit to their columns advertisements of doubtful decency and truth. Those publications which do not attempt to conceal their purpose to pander to the basest tastes, as well as those where the same purpose is but flimsily veiled under a pretense of a higher object, are deservedly regarded as amenable under the law against the circulation of obscene literature. But others,—newspapers, household or agricultural journals,—designed for circulation among people of a better class, insist upon degrading their pages by the introduction of advertisements of nostrums, appliances, and pseudo-medical works which are self-condemning in the estimation of decent people. Are not these often furthering the cause of dealers whose wares could not legally be advertised through the mail by other modes?

Without demanding infallibility of judgment in editor or publisher as to the reliability or purity of purpose of the advertiser, we may yet insist that self-evident aims to defraud or debase the readers of a periodical should not be given the tacit approval and recommendation of a sheet claiming to be trustworthy and clean.

Turning the pages of certain weekly papers circulating largely among the farmers of Kansas, we may find the standing advertisements of the retired physician, who, receiving his recipe from an East Indian missionary, now offers free a prescription for the cure of many diseases, more or less unmentionable; the beard elixir, which is warranted under forfeit of a large sum of money to produce or renew hirsute adornment in three weeks or a month's time; voltaic, electric and magnetic belts, pendants, brushes, insoles, and what not, for the cure of all ills, and on perfectly scientific principles; compound oxygen, concerning which chemistry offers no explanation; and so on till one loses patience with the gullible crowd that pays the bills.

In strict justice, the advertisers of the above and scores of similar imposters would be open to action for obtaining money under false pretenses, and the periodicals that admit their advertisements as accessories to the crime.

The appearance of advertisements of the character noted in the columns of a household paper should and does detract from the reputation for reliability which that paper wishes to maintain. In selecting periodicals, one careful in such matters will surely omit these where it can be done, giving preference to publications which are free from objection, as are indeed what we may call the best, the most reliable and substantial papers. The protest by letter of the subscriber who wishes an unobjectional family paper, if made by a number of the supporters of that paper, ought to weigh more with the publisher who desires the best support than the cash received from such advertisers.—*Prof. Popenoe.*

## Some Elements of Power.

### ASSOCIATION.

One of the elements of power—one that the world has experimented with to some extent—is association. Doubtless men, from necessity, were early driven to form communities. Common needs early brought about unity of effort, and men learned the secret that the power of two is more than double the power of one. The Scriptural expression that *one* shall chase a thousand and *two* shall put ten thousand to flight, expresses a ratio that accords very well with the facts of common experience. Men who alone cannot dignify a calling, or even claim their right, become at once respectable by numbers. And people respect themselves more when they, like digits, have not only a simple but a local value by being bound to others in a recognized community of interests. This feeling gives them needed strength and greater capacity to do. For this reason the club, the lodge, the grange, the institute, should be supported with every other proper place where men may mingle with their fellows to receive encouragement and new ideas. The great movement of the "Patrons of Husbandry" that swept over the West a few years ago will have done much good, even though every grange hall should be closed; for it has taught farmers what factors they are, or may be, in the commercial world, and has given the first fruits of coöperation. The movement may change form, but it will not die out. In many parts of our State, the farmers now come together in their institutes with the same regularity and earnestness as do the railway officials, the lawyers, the editors or the teachers.

Outside of government, the greatest power yet shown in association is in the labor-unions of the present. A striking instance of this is just before our eyes. A single class of men has it in its power, without violence, to measurably control the commerce of the nation. This may not be a good thing in itself; it may become a disruptive force in society, or it may read us the lesson of coöperative industry; still, it is a *force* that the wise man must recognize and learn to use for good. As an element of social power, it will frequently be found upon the side of injustice until the world through wisdom has become more nearly just.

### HEREDITY.

One source of personal power is the capability, the adaptability, or the ready-made knowledge, that tends to express itself in posterity. We are coming to understand better the value of physical, mental and moral inheritance. We now know that every man at birth enters upon an inheritance in some degree of the wisdom or the vices of his progenitors. This inheritance is either a power that will back all his endeavors for good, or a hindrance that must for years, perhaps for life, be fought against in the struggle for success. If young men and young women could carefully study their own capabilities and desires, and then educate themselves broadly in the direction of their peculiar fitness, half the battle would be won; for success comes most easily in the line of inherited tendency. Those who ignore this power in their lives are very often pressed altogether out of the lists, or, chafed by circumstances, strive vainly for what they can never attain; while the greatest men of all time have been those who built their own individuality upon the foundation of inherited capability.

### THOUGHT.

Thought is a power given to every human being. There are apparently no limits to its achievements. It places in every man's hands a lever that, in its effects, may be more than a rival of the imaginary one of Archimedes. Yet we are becoming such creatures of impulse that when we wish to designate a person who really makes this faculty a power, we single him out from his fellows as a "man of thought." We are becoming too content to do a thing because, for the moment, we feel like it; to order our lives on the principle that one thing will suggest another. The old-fashioned times for meditation are passing away. If we have ten minutes of leisure, we spend this with book or paper; rarely in thought.

The farmer who carefully considers his strength and the capabilities of his farm, who provides a use for all the odds and ends, who controls his work instead of letting his work control him, who studies to make the very most of everything, is the man whose granaries are filled, whose stock is sheltered, and whose bank account is growing. The merchant who has looked at a business from all possible sides, and who has thought how to meet what might be emergencies, seldom needs to worry about business. The man who has thought clear through a subject is the only competent adviser upon it. The man of thoughtful habit has many chances of success where the man of impulses, or "haphazardness," has few. When real leaders are called for in any line of life, only men of thought can respond.

When the world's work bears down upon men, and intricate problems of social or civil polity must be solved, it is the thoughtful man who points out the way. When the interests of mankind require natural difficulties to be overcome, the man of thought is ready with his invention or his plan. For the thoughtful student, nature has no secrets. To him, she opens all her storehouses; she harnesses all her powers in his service; she invites him to the conquest of all her realm, and leads him from victory to victory by the lines that are everywhere traced for his guidance.

These are some of the powers we may use in this curious life of ours.—*Prof. Olin.*

### Entering College.

Applicants for admission at the beginning of the year, in September, must be at least fourteen years of age, and able to pass a satisfactory examination in reading, writing, arithmetic including percentage and interest, geography and elements of English grammar. Those applying later in the term must show sufficient advancement to enter the classes already in progress. Every effort should be made to begin with the first of the term, in order to advance with the class from the first.

Applicants of mature age who, for lack of advantages, are unable to pass the full examination may be received on special conditions.

Applicants for advanced standing in the course must pass examination in all the previous studies of the class to be entered; but, if they have pursued such studies in other institutions of similar rank, they may receive credit for their standing in those institutions upon presenting a certificate from the proper officer, showing that their course has been equivalent to that given here.

### Board and Rooms.

No provision for rooms and board is made at the College. The students all find homes in families or in family boarding-houses, at rates varying from \$3.00 to \$4.00 a week for board with furnished room. Lists of boarding-places, with prices and accommodations, can always be had at the President's office, and students are required to notify the President of their rooms when selected.

Lists of rooms for rent without board may also be had by those who wish to board themselves. Directions and advice are gladly given by any of the officers.

### Industrial Arts.

*Industrial Arts.*—The training in these departments is designed to be systematic and complete in each, so that any student, following a single line diligently through a whole four-years' course, gains the essentials of a trade and a reasonable degree of skill. Those who wish only a general acquaintance with the arts can take shorter courses in several of them; but all are to select with definite purpose. In the established course, young men are required to take the regular term in the carpenter shop and on the farm and gardens whatever the industrial chosen. Young women are required to take one term in the kitchen laboratory and one in the dairy, though other industrials may occupy their course.

*Dairying.*—During the spring term, daily instruction and practice in the different branches of dairying is given the ladies of the second year by the Instructor in Household Economy. A dairy, well equipped in modern appliances for the manufacture of butter and cheese, is connected with the Department of Household Economy. Here the regular dairy work is supplemented by a short course of lectures intended to explain the best practices in the art of butter and cheese making, and to give the reason therefor. The following topics cover, in the main, the instruction given the class: Influence affecting the quality and quantity of milk; butter making; the household and factory system of cheese making. Creameries; "deep" and "shallow" setting system; packing and preserving butter.

*Agriculture and Horticulture* are required of young men as industrials during one term of the second year and one term of the third year. In these, practice is made to illustrate and emphasize the teaching, and covers essentially the same ground.

*Carpentry, etc.*—On entering the shops, all take the same first lessons in sawing, planing and dressing lumber, making mortises, tenons and joints, and in general use and care of tools. Later, one who chooses a trade is provided with work directly in the line chosen; while the farmer's course provides for general training in a great variety of operations, rather for ingenuity than skill. In the full course of a carpenter, special instructions are given in the whole range of work, from framing to stair building. Carpentry is required of young men during one term of the first year.

In iron work, instruction is given in ordinary work, —forging, fling, tempering, etc.

*Printing.*—Two courses are pursued in this art. In one the student is taught the implements or tools employed in typography, and how to use them; composition; imposition; correcting proof; technical terms; presses and their workings; and the general duties of a first-class workman. Everyone is encouraged in studying the rise and progress of printing and related arts. Habits of accuracy and thoroughness are required in order to advancement. The second course of lessons, alternating with those of the first, embraces instruction in spelling, capitalization, syllabication, punctuation, proof-reading, preparation and criticism of essays, and such other work as will make the student accurate and expert in language. Wilson's Punctuation is the text-book; but much of the instruction is oral, —such as grows out of the every-day experience of the office.

Admirable drill is furnished by the INDUSTRIALIST to all, but especially to those who take the full course. The printing which the departments of the College require gives to the advanced student a fair knowledge of the principles and practice of job work.

*Telegraphy.*—The course of training involves for beginners the characters that compose the alphabet, and combinations of these characters into words and sentences—attention being paid to spelling and to short and precise expressions in messages, —abbreviations, signals, forms of messages, train orders, reports etc. To the more advanced is given regular line business, as press reports, messages, cipher messages, and orders in all forms used by prominent telegraph companies, together with the necessary book-keeping, upon exact copies of the blanks in actual use, thus giving the students an understanding of the work of an operator. A portion of the time is devoted to instruction in the management of lines, batteries, instruments, etc. The elementary principles of electricity, magnetism and electro-magnetism, involved in telegraphy, are taught and illustrated by experiments. The more recent inventions related to the art are discussed and explained. Pope's Handbook of the Telegraph is used as a text-book.

*Sewing.*—Young ladies are taught in all ordinary forms of sewing with needle and machine, and in cutting, fitting and trimming dresses and other garments. A straight-line system of cutting and fitting is taught, and systems are furnished to students at wholesale rates. They may furnish materials, and work for their own advantage during the hour of practice, under the direction of the Superintendent.

*Instrumental Music.*—Provision is made for the teaching of music upon instruments of all sorts. A full course upon the organ or piano extends over four years, including harmony and composition; but students may take lessons for a single term if they choose. The College furnishes the instruments for daily practice, but the instruction is paid for at usual rates.

# THE INDUSTRIALIST.

SATURDAY, MARCH 27, 1886.

## CALENDAR.

1885-86.

FALL TERM.—Sept. 10th to Dec. 18th.  
WINTER TERM.—Jan. 5th to Mar. 26th.  
SPRING TERM.—Mar. 29th to June 9th.  
June 9th, Commencement.

Persons receiving the "Industrialist" need have no fear of bills to come; for the paper always stops with the expiration of subscriptions, unless continued by favor of a friend or of the College.

## BONDS WANTED.

School District bonds issued on College blanks will bring their par value at once. Address T. P. Moore, Holton, Jackson Co., the College Loan Commissioner.

About 250 students are already assigned to classes for the spring term.

The second division of the Senior class gave orations in the Chapel yesterday afternoon.

A new plot of the College grounds is in preparation for the catalogue of 1885-86, soon to be issued.

The regular annual meeting of the Board of Regents is to be held at the College on Tuesday, April 6th.

The willows on the lawn are coloring at approach of springtime, and the sodded terraces are green already.

The winter term closed yesterday with examinations as usual, and a small minority of students return home for the spring work on the farm.

The Farmers' Institute of this week at Wa-Keeney finds Profs. Shelton and Lantz and Mrs. Kedzie present to assist in a very strong programme.

With seventy entomologists and one hundred botanists scouring the prairies this spring, the bugs and the flowers will meet with but little quarter.

Plowing and preparing oat ground and sowing oats in the Farm Department, and planting trees by the horticultural people, have occupied a strong force during a good deal of the week.

The class in cooking and Domestic Science added to the enjoyment of their annual entertainment last week by presenting Mrs. Kedzie with an elegant copy of *Paradise Lost* illustrated by Dore.

Prof. Failyer and Assistant Willard will have need of the two large analytical rooms of the Laboratory for the classes in analysis next term: the present second-year class is the largest on record.

The Horticultural Department received a considerable invoice of ornamental trees this week, the condition of the soil and the weather permitting immediate planting. The grounds will gain large accessions this spring to the already generous plantations.

The programme of the Webster Annual Thursday evening brought the usual collection of orations, debate and *Reporter*, with an amusing colloquy at the close,—all carefully prepared and thoroughly well presented. The Society proved to general satisfaction that it is doing excellent work for its members.

The Howard ditch, south of the College Farm, which, pretty much ever since it was dug, has been widening in the direction of the College Farm, has recently begun gnawing upon the south bank, so that the wagon-way is well nigh undermined in several places. The road is already unsafe, as will be found when some luckless wight is plunged headlong down the twenty-foot-deep precipice, the edge of which is even now within a couple of feet of the wagon track.

The second volume of Faculty Records begins this week. The five hundred pages of manuscript, presenting all the accord and discord of such a body for more than twenty years, grows interesting with age. Even the frequent entry of early days, "Faculty met, talked over College matters, and adjourned," has its pleasant revelations of calm and easy progress. Only three different signatures appear for Secretary,—J. E. Platt, Lizzie Williams and I. D. Graham.

The furnace, heating the President's house, has given excellent satisfaction. Though the winter has been severe enough to give more than an ordinary test, it failed in no respect to give substantial comfort. A slight readjustment before another winter will correct a few imperfections in arrangement of flues, so that the whole house will defy the coldest winds. The furnace is of the Richardson & Boynton make, put in for Mr. A. J. Whitford by A. Browning. The only complaint is that it will not pay its coal bills.

This year we sow nothing but "winter" oats, meaning by that the heavy, rather coarse, reddish-colored variety that passes quite generally throughout the State under that name. These oats may be sown safely almost any time in the spring after the frost is out of the ground; but plants of this variety will not nearly survive exposure to a Kansas winter. The time is near at hand when spring oats will be unknown in Kansas. The winter sort yields fully a third more than the common variety, and the quality of the grain is greatly superior to the common shriveled-up Kansas oat.

## WINTER BEHAVIOR OF OUR TAME GRASSES.

The winter just passed has been the worst in its effects upon our tame grasses that has been experienced in this section in twelve years at least. A recent careful examination of the meadow, upon the College Farm, shows them to be in a most deplorable condition. Great stretches of what a few weeks ago was smooth, handsome sod land, full of life and vitality, now cannot show a single living grass or clover plant. In general, it may be said that in exposed situations, and wherever causes tending to weaken the vitality of the grass plants—as close feeding in the fall, and poor soil—have been in operation, there Jack Frost has worked most efficiently. Below is a statement giving somewhat in detail the effects of the winter upon a few of the sorts of clovers and grasses in cultivation upon the College Farm:—

*Alfalfa*.—In all exposed positions, and wherever it had been grazed closely last season, our alfalfa has been totally destroyed. In situations protected by snowdrifts during the winter, and where the plants were protected by a late growth, even of weeds, they seem not to have suffered.

*English Blue-Grass*.—So far as we can discover, this sort has not been seriously injured.

*Kentucky Blue-Grass*.—This has not been damaged in the least.

*Texas Blue-Grass*.—This new and most valuable sort, which already shows numerous blades six to ten inches in length, is quite uninjured.

*Orchard-Grass*.—For the first time, we believe, since the first settlement of this section of the State, this old and much-valued sort has winter-killed, and that almost to the verge of extermination.

Old meadows that have been subject to mowing and pasturing for years, and have never failed to produce abundantly, can now show scarcely a living plant of grass or clover, except in the occasional depressions found in the field or in those pastures protected by fences. As with some other sorts, we notice that the seeding of last year, which was neither pastured nor mowed to any considerable extent, has suffered no injury. The same may be said of all protected situations, and generally where the plants went into winter quarters protected by a heavy after-growth.

*Red Clover*.—This old favorite has suffered very much, as orchard-grass has; in other words, scarcely any clover plants remain alive upon the farm.

*Timothy*.—Of this sort we have but little, but this little seems to be quite uninjured.

*Tall Meadow Oat-Grass*.—It is difficult to state accurately the condition of the oat-grass, as ours is generally more or less mixed with other sorts. Apparently, it has suffered seriously, but in a less degree than orchard-grass.

These notes serve to show the deplorable condition of our tame-grass meadows. The damage done to these fields will amount to a good many hundred dollars; but, worst of all, it will require at least three or four favorable seasons to bring our pasture field and meadows to their old productive condition. If asked the cause of all this damage, we can only offer an opinion, and that is that the sheet of quite heavy ice which covered our fields during all of January and much of February was the chief cause of all this loss.

## COLLEGE SOCIETIES.

**ALPHA BETA**.—Chartered, December 26th, 1870. Meets in the Society Hall every Friday at 2:30 P. M. Ladies admitted. New students cordially invited to attend.

A. M. GREEN, President

MISS IDA QUINBY, Secretary.

**WEBSTER**.—Chartered, January, 1871. Meets in Society Hall every Saturday evening. Visitors, especially students, always welcome,

D. G. ROBERTSON, President

F. H. AVERY, Secretary.

**SCIENTIFIC CLUB**.—Meets on first Friday evening of each month. Composed of members of the Faculty and advanced students. Devoted to the improvement of its members in general scientific knowledge, and the encouragement of original investigations.

PROF. WALTERS, President

MRS. KEDZIE, Secretary.

**HAMILTON**.—Chartered January 29th, 1885. Meets every Saturday evening. Admits gentlemen only. Visitors always welcome.

G. W. WATERS, President

C. F. GOSS, Secretary.

The Y. M. C. A. meets at 3:30 P. M. Sunday.

D. G. ROBERTSON, President

C. A. MURPHY, Secretary.

The Y. W. C. A. meets Thursday afternoon.

F. HENRIETTA WILLARD, President

NELLIE COTTRELL, Secretary.

## REPORTS.

SOCIETY HALL, March 26th, 1886.

The Alpha Beta Society came to order with President Green in the chair. D. W. Working led in devotion. The Society then listened to a quartette by H. A. Platt, W. M. Wright and E. C. and L. B. Parker. E. C. Parker gave a recitation entitled "The New-fashioned Girl." Abbie Marlatt read an essay on strikes. The question for debate was, "Resolved, That the present outbreak of the strikers tends to injure their cause." The arguments pro and con were presented by A. G. Rogers and C. A. Murphy on the one hand, and J. S. Hazen and L. P. Brous on the other. The decision was rendered in favor of the affirmative. We next listened to a short but excellent *Gleaner*; editor, H. W. Stone. After recess, Messrs. Parker sang a duet, F. Henrietta Willard playing the accompaniment. The order of extemporaneous speaking was passed; and business occupied the time until adjournment. C.

SOCIETY HALL, March 20th, 1886.

The Websters were called to order by President Robertson. Roll-call. Prayer by W. S. Hoyt. A. B. Kimball was initiated. Mr. D. G. Fairchild was appointed to act in the capacity of Critic and L. H. Dixon as Marshal. The Question "Resolved, That the English language should become general" was discussed on the affirmative by G. H. Deibler and L. D. Bunting; on the negative by T. C. Davis and C. M. Breese. The judges decided in favor of the negative. Declamations were given by J. B. Brown and C. E. Friend; essay, J. E. Kurr; reading by F. S. Ditto. The name of F. G. Kimball was proposed for membership. After recess, the Society listened to discussions by W. R. Browning, E. T. Martin, M. P. Davis and F. Shaw. While our modesty, as well as our honesty, does not permit us to unite with the reporters of our contemporary Societies in saying of every exercise given that it is "well-read," "well-rendered" or "well-written," we do not feel backward in asking outsiders to visit our meetings and judge of the exercises for themselves. TEDDY.

SOCIETY HALL, March 20th, 1886.

The Hamilton Society came promptly to order at the usual time, with President Waters in the chair. Roll-call. The Marshal being absent, F. E. Goss was appointed Marshal pro tem. Prayer by E. H. Perry. Owing to the absence of a large number of those on duty, a part of the programme was carried over. We believe that this is the first time in the history of the Hamilton Society that more than one half of the members on duty were compelled to absent themselves on account of sickness and various other causes. Three of the debaters being absent, this order was passed, and in its stead was substituted a general discussion on the subject, "Resolved, That the Indians have more cause to complain of their treatment by the whites than the negroes." The sides were represented respectively by W. O'Harro and N. E. Lewis, who chose sides. All of the members present were chosen and required to speak two minutes each. The debate was indeed quite interesting. F. B. Deibler, an Alpha Beta, was chosen judge, and, having weighed the argument on both sides, rendered his decision in favor of the negative. Intermission. Following this was a declamation by C. Owen; select reading by Mr. Dinsmore. A. C. Cobb was then appointed to occupy the time of Mr.

Chase, in the course of which he used eloquent language in defense of the red race. Mr. Wyatt, committee on music, being absent, A. Walters was chosen to perform the part of the delinquent. The reading-stand, which has been in process of making for some time, is now completed and stands in bold prominence in its place upon the stage. We deem this a long-felt want supplied. Extemporaneous speaking was enjoyed by all. ALE.

## Required Industrials.

The need of general training of youth to some degree of dexterity in the every-day work of life, is recognized everywhere now-a-days. In this College, each young man spends time enough in the Carpenter Shop to learn how to use the common tools with ease, and do plain work with some idea of exactness. He also gives hours enough to farm and garden work to have clear notions of what they involve, and interest in the success or failure of varieties and methods. Each finds his critical spirit in such matters strengthened by test of his own abilities and judgment in everyday experience. These occupy one term of each year of the course prior to the fourth.

The young women find a similar provision for their familiarity with every-day affairs in the requirement of one hour a day for one term of the first year, in sewing adapted to their advancement, and in the practice in cooking and dairying required during two terms of the second year. Nimble fingers with the needle may not serve the same purposes as before the sewing-machine snatched the long seams out of the hands of the women; but the ready judgment and taste that make the beauty and comfort of dress are gained only by handling, with careful instruction, the tools that are employed about dress. In the same way, the tact of house-keeping comes by practice under tuition far more readily than under the sharp raps of chagrin and dyspepsia from sour bread, heavy cake and badly-cooked meats.

The required industrials of the course will have served their purpose well in such ways, even if they do not pave the way to skill in these universal arts.

## MANHATTAN CARDS.

### Manhattan Hotels.

Cottage Hotel, \$1.00 per day.  
Commercial House, \$2.00 per day.

### George Firestone.

G. Livery, Feed and Sale stable. East end of Poyntz Avenue.

### Higinbotham, Stingley & Huntress.

Merchants, proprietors Blue Valley Mills Manhattan, Kansas.

### Burgoyne's.

Photograph Gallery. Established, 1859. Opposite Purcell's Bank.

### Clothier.

Wm. Knostman, Ready-made Clothing, Hats, Caps, and Gents Furnishing Goods. Opposite postoffice.

### Fox's Book Store.

COLLEGE TEXT-BOOKS, School Stationery, Pencils, Ink, Scratch-books, etc., etc. Manhattan, Kansas.

### Manhattan Clothing House.

Best goods and best prices. Boys, come and see us, opposite Purcell's.

LEMMON & KOLLER.

Barber Shop and Bath Rooms. In basement room opposite Purcell's. This is the place to get a good easy shave, a first-class hair cut, and a good, clean bath. Satisfaction guaranteed. Don't forget the place, but give me a call and be convinced.

P. C. HOSTRUP, Proprietor.

### Allen Bros.

Opposite the Postoffice, keep a full line of Groceries, Flour, Fruits, Candies, Nuts, etc. Their goods are fresh and first-class, and prices are low and Goods delivered free in any part of the city and on College Hill. We invite all to call, and we will endeavor to give satisfaction.

ALLEN BROS.

### Manhattan Bank.

E. B. Purcell, banker. J. W. Webb, cashier. A general banking business transacted. Bills of Exchange issued on all principal cities and towns of Europe. All collections have personal, faithful and prompt attention of our attorneys. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

### B. Purcell,

Corner of Poyntz Avenue and Second St., has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, &c., &c., &c. Goods delivered in all parts of the city, and at the College, free of charge.

### Kansas Educational Notes.

PROF. J. D. WALTERS.

The Cherokee County Normal will be held in August; conductor, Geo. E. Rose, of Rosedale.

The Young Men's Christian Association, R. R. branch, of Topeka, have started an evening drawing school.

It is not right to send very young children to school just to avoid taking care of them at home. Schools are not intended for nurseries, and teachers have something else to do besides attending to the physical wants of their pupils.—*Solomon Sentinel*.

Some of our teachers seem to think they are behind the age if they do not invent or advocate some new and startling doctrine. When a teacher undertakes to say that English grammar has no place in the country school, we strongly suspect that he himself has no place in the country school.—*Jewell County Republican*.

We are in receipt of a copy of the catalogue of Leavenworth high school for 1885-86. The very tasty little pamphlet enumerates 288 pupils, of whom 39 are seniors, 38 middles, 75 juniors, 83 sub-juniors, and 48 prep. It also gives tabular views of the work of the three courses of the school, together with the rules for admission, tuition, and the calendar for the present and the next school year.

The county high school is commencing to move. We notice an increasing interest taken by the weekly press of the State in this new institution. Recently a well-attended meeting was held by the citizens of Marysville to consider the advantages of having the Marshall county high school located at that place, and the amount of aid the city might be able to offer for the location of the institution. Randolph and Leonardville are strong rivals for the high school of Riley county, and Hanover is making efforts to get the high school of Washington county. Let the good work go on.

Prof. Canfield has received letters from the President of the National Teachers' Association, which will meet in Topeka the coming summer, as regarding the railroad rates that have been secured. The following are the rates: Boston to Topeka and return, \$41; New York to Topeka and return, \$39; Chicago to Topeka and return, \$14; St Louis to Topeka and return, \$9. All roads in Kansas will give half rates, while excursions will be run to Denver at very low rates, less than half, but just what has not yet been determined. Excursions will be run from Denver to various points in Colorado and the adjoining territories.—*University Courier*.

The State Normal School, Emporia, Kansas, publishes the following special announcement:

So great has been the demand for instruction covering the requirements for certificates under the new law, that we have decided to organize a special class for teachers and institute workers, in physiology and hygiene, on Monday, April 12, 1886. The course will include practical dissections and lectures on the nature and effect of alcoholic stimulants and narcotic poisons. Teachers holding certificates of any grade will be admitted to this class without examination; others will be given the usual entrance examination. The fee will be \$6.50 for the ten weeks. Pupils will be admitted to classes in other subjects, without extra charge, on the usual conditions, though the work in physiology and hygiene will require at least half of the time. The classes in *Kindergarten* and *primary work* are organized on the same day. This is a rare opportunity for review, and for the study of methods, as well as for an acquaintance with physiology and hygiene under a thorough and experienced specialist.

### Sounds from Shawnee County.

From a column of educational news matter, in the *Capital*, by John McDonald, Supt. of Shawnee county, we cull the following interesting paragraphs:

The losses by marriage in the ranks of the Shawnee county teachers are going to be unusually heavy this year. Miss Anna White has become Mrs. Mc-Knight; Miss Jennie McComb, Mrs. Talfierro; and Miss Emma P. Gamble, Mrs. Tucker. Several others, with formida-

ble rings on their fingers, are contemplating matrimony in a meditative manner. The old, old fashion, yet ever new.

Last Saturday the Tecumseh school district, by a vote of 108 to 9, voted \$4000 in bonds to build a school house. The new house will contain several rooms, and will be one of the finest in the county.

For a given school, of two applicants having equal qualifications and capacity, the neediest may properly be chosen to teach; but when the neediest is not only not equal to the other in scholarship and ability, but is notoriously unequal, it is a sinful waste of public money, and an abuse of public trust, to employ him. From 25 to 60 children must not be sacrificed on the altar of charity. How many times is this done in the State of Kansas? Brethren on the various district boards, ask yourselves this question, and if your conscience convicts you, go out, like Peter of old, weep bitterly, and resolve to do better hereafter.

"I do wish Lucinda could get a school: it would do her so much good, giving her an opportunity to educate herself, and to acquire self-possession and self-reliance."

DEAR MADAM: Lucinda, as your daughter is naturally to you an object of deep solicitude, she is likewise interesting to herself, and, very probably, deeply so to a third person still unknown to the general public. But the great question confronting us every day, and now loudly demanding an answer, is not what is best for Lucinda, but what is best for her possible pupils. In comparison with their welfare, hers fades into insignificance. If, however, Lucinda is a person designed by nature and fitted by education for the teaching of children, then we bid her all hail, welcome and God-speed, and ungrudgingly allow her all the incidental benefits she may derive from her work.

The indifference of many school boards in regard to the condition of many school-room windows amounts to criminality. Sometimes as many as six panes are found to be broken, and inquiry shows that they have been allowed to remain so for weeks. The teacher tries to exclude the bitter blast by stuffing watterproofs, maps of Africa, and other available articles into the holes, but often there is nothing to protect the unfortunate children whose seats are in the line of the draught. If a delicate child of tender years, sitting exposed to the biting March wind, should contract a fatal disease, who is responsible?

THE Catholics have begun, in a somewhat promising way, the foundation of a Catholic university. They want \$800,000, and they have got \$600,000, and the balance seems to be within reach. The object is, as explained by Bishop Kean, at a meeting held last Thursday, to supply Catholic youth with a higher education, without exposing them to the skepticism with which all the existing universities are infected. "The universities and secular colleges," he said, "were turning out accomplished scholars who were tainted with disbelief." "There was no institution for the highest learning," he added, "either in England or in this country, where a Catholic young man could receive an education without danger to that priceless treasure, his faith."

There are doubtless a good many strong reasons why Catholics should have a university of their own; but surely the failure of all denominational colleges thus far to save their students from the agnostic infection—a failure which Bishop Kean himself points out—ought to make people hesitate about starting another as a bulwark of faith. The Catholic universities on the European continent have not prevented the bulk of the young men from becoming sceptics; why should an American university fare any better? No university will ever succeed, or has ever succeeded, in implanting in young men's minds ideas about the unseen world which are sure to last. In truth, it is, judging from experience, questionable whether the universities under theological management are not more dangerous to faith than secular ones, for the simple reason that they attempt to furnish a young man under twenty-one with a fixed set of opinions on subjects not capable of scientific treatment, is very apt to produce a reaction on his first exposure to unfavorable influences.—*The Nation*.

### General Duties and Privileges.

General good conduct, such as becomes men and women anywhere, is expected of all. Every student is encouraged in the formation of sound character by both precept and example, and expected "upon honor" to maintain a good repute. Failure to do so is met by a prompt dismissal. No other rules of personal conduct are announced.

Classes are in session every week-day except Saturdays, and no student may be absent without excuse. Students enrolled in any term cannot honorably leave College before the close of the term, unless excused beforehand by the Faculty. A full and permanent record of attendance, scholarship and deportment shows to each student his standing in the College. After each monthly examination a report of advancement is made to parents; and any student, upon leaving College at the close of a term, may receive a certificate of standing.

Chapel exercises occupy fifteen minutes before the meeting of classes each morning, and unnecessary absence from them is noted in the grades.

Twice in each month the whole body of students gather for a lecture from some member of the Faculty, or for the rhetorical exercises of the third and fourth-year classes. On alternate weeks all the classes meet at the same hour, in separate class rooms, for exercises in elocution and correct expression.

There are three prosperous literary societies, two of them of many years' standing. All meet weekly, in rooms set apart for their use. The *Alpha Beta* is open to both sexes, and holds its meetings Friday afternoons. The *Webster* and the *Hamilton* admit to membership gentlemen only, and meet on Saturday evening.

The Scientific Club, composed of members of the Faculty and students, meets in the Chemical Laboratory on the first Friday evening of each month.

Every Friday evening a students' prayer meeting is held in a College Society Room, led by a member of the Faculty. On the Sabbath students are expected to attend services at least once in the different churches of the city.

Occasionally during each term the College Hall is opened for a social gathering of faculty and students, in which music, literary exercises and friendly greeting find place.

Public lectures by prominent men of the State are provided from time to time, as opportunity offers. All are free.

The Manhattan Horticultural Society meets monthly, and other farmers' associations occasionally, at the College, and the students have the privilege of attending these meetings.

### Means of Illustration.

Two farms of 171 and 100 acres, for the most part surrounded by durable stone walls, subdivided into fields of variable size to suit the system of management.

A large variety of standard experimental grains in cultivation in fields and experimental plats.

A well-planned barn for grain, hay, horses and cattle; and a piggery of six pens, with separate yards.

Shorthorn, Aberdeen-Angus, Galloway and Jersey cattle; Berkshire, Poland-China, Jersey Red and Essex swine.

Farm implements of improved patterns.

Collections of grains, grasses and forage plants.

Orchards, containing 275 varieties of apples, 80 of peaches, 50 of pears, 16 of plums, 20 of cherries and 10 of apricots.

Small-fruit garden, with 200 varieties of small fruits, including blackberries, raspberries, gooseberries, currants and strawberries; and vineyard with 100 varieties of grapes.

Forest plantation of twelve acres, containing twenty varieties of from ten to fifteen years' growth.

Ornamental grounds, set with a variety of evergreen and deciduous trees. Sample rows, containing 150 varieties of ornamental and useful shrubs and trees, labeled.

Vegetable garden, with hot-beds and cold-frames and experimental beds. Practice rows for students' budding, grafting, cultivating and pruning.

A well-planned and furnished greenhouse of three rooms, stocked with a collection of native and exotic plants.

Chemical laboratory, with eight rooms, fitted with tables and apparatus for a class of eighty students; also, physical apparatus, meteorological instruments, and apparatus for advanced chemical work and assaying.

Models, plaster casts and patterns for drawing, and charts for illustration.

Botanical museum, containing a good herbarium, fairly representing the flora of the United States; a collection of native and foreign woods, seeds, nuts, dry fruits; a collection of abnormal wood growths.

Mineral and geological cabinets, including collections of Professor Mudge; a representative collection of the ores of Colorado, New Mexico and Arizona.

Zoological museum, containing a typical collection of birds and mammals, mounted; a cabinet of bird skins, eggs and nests; a good collection of reptiles and fishes in alcohol; a large series of land, fresh water and marine shells; a good representation of the insects of this locality, and a collection of invertebrates in alcohol.

Mathematical instruments, — compasses, transits, levels, chains, for field work.

Carpenter shop, with separate benches and lathes, mortising machine, and general chest of tools for fine work.

Shop for iron work, with forges, vise, drill, etc.

Printing office, with twenty-five pairs of cases, a good assortment of body and job type, a Country Babcock press, a quarto jobber, and a paper cutter.

Telegraph office, with six miles of line, connecting thirty-two branch offices, and as many instruments, and a Remington type-writer.

Sewing rooms, with five machines, models and patterns.

Kitchen laboratory, with ranges, cooking utensils, dining-room furnishings, creamery and dairy furniture.

Music rooms, with four pianos, three organs, and other instruments.

A library, carefully selected and catalogued, containing 6,000 volumes. A reading room is maintained in connection with the Library, where may be found on file forty-five of the leading literary, scientific, technical and agricultural periodicals, and several hundred newspapers, including the principal daily and county papers from all parts of the State.

Armory, containing one hundred stand of arms (breach-loading cadet rifles, calibre .45) with accoutrements.

### Earnings.

The labor of the students in the industrial departments is principally a part of their education, and is not paid for unless the student is employed—outside of required hours of labor—upon work for the profit of the College. Students are so employed upon the farm, in the gardens or the shops, and about the buildings.

The labor is paid for at rates, varying with service rendered, from eight to ten cents an hour. The Superintendents strive to adjust their work to the necessities of students, and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly pay-roll for the past year ranges from \$377 to \$456.

Many students obtain work in the city or upon neighboring farms, and so pay a part of their expenses. Students employed in the shops are allowed to work somewhat for their own profit, in the manufacture of articles for sale and use. In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide by earnings outside of term-time, or from other sources, for the larger part of their expenses. The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education if he has the ability to use his chances well.

### General Course of Study.

Each student is expected to take three studies besides one hour's practice in an industrial art; and variation from this rule can be only with consent of the Faculty.

Parallel courses are offered to both sexes with such differences as their necessities seem to call for. The following gives the general scope of the two; but fuller explanations are found in the annual catalogue.

FIRST YEAR	FALL TERM.	Arithmetic. English Analysis. Geometrical Drawing.
	WINTER TERM.	Book-keeping, Drawing. English Structure. United States History.
SPRING TERM.	FALL TERM.	Algebra. English Composition. Botany.
	WINTER TERM.	Algebra completed. Elementary Chemistry. Horticulture. 14 Lectures in Military Science.
SECOND YEAR	FALL TERM.	Geometry. Practical Agriculture or Household Economy. Organic Chem. and Mineralogy. 12 Lectures in Military Science.
	SPRING TERM.	Geometry completed, 5 weeks. Drawing, 5 weeks. Entomology. Analytical Chemistry.
THIRD YEAR	FALL TERM.	Trigonometry and Surveying. Physiology. General History.
	WINTER TERM.	Mechanics. Agricultural Chemistry. Rhetoric.
FOURTH YEAR	FALL TERM.	Civil Engineering. Drawing, (or Hygiene). Chemical Physics. English Literature.
	WINTER TERM.	Agriculture or Literature. Meteorology. Psychology.
SPRING TERM.	LOGIC, DEDUCTIVE AND INDUCTIVE ZOOLOGY.	Logic, Deductive and Inductive Zoology. Structural Botany.
	SPRING TERM.	Geology. United States Constitution. Political Economy.

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### COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner. College Lands and all business connected with their sale are in charge of the Land Agent. Bills against the College should be presented monthly, and, when audited, are paid from the office of the Treasurer, in Manhattan. All Payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. The INDUSTRIALIST may be addressed through Prof. E. M. Shelton, Managing Editor. Subscriptions are received by Supt. Geo. F. Thompson. Donations for the Library or Museums should be sent to the Librarian, or to Prof. Kellerman, chairman of the committee on Museums. Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents. General information concerning the College and its work,—studies, examinations, grades, boarding places, etc.,—may be obtained at the office of the President or by letter.

### Frauds upon Farmers.

There must be many farmers who do not read the agricultural papers, or there would not be so many cases reported of those who have lost money by the Bohemian oat swindle and other confidence games. Mr. Dodge, in his last monthly report, has thought it worth while to give a history of this Bohemian oat business, and an unsavory record it is, as readers of the *Press* know who have kept up with its disclosures. One hundred thousand dollars have been filched from the farmers of Ohio alone, and it is comforting to know that convictions of many rascals are promised, so that Mr. Henry Bacon will probably have company in his seven years' service in the Ohio penitentiary. Here are some other frauds enumerated by Mr. Dodge against which farmers should be warned: Agents for the sale of fruit trees, fertilizers, stoves, cooking ranges and various other articles, succeed in many instances in selling their wares at two or three times their value, or getting the farmer's money for things that prove utterly worthless. The devices for getting a farmer's signature to some paper which can be changed into a negotiable note and sold for cash are too numerous to mention. A favorite ruse is to get him to act as agent for the sale of some article of farm machinery, leave some of the articles with him, and take his receipt for them in such form that, with or without change, it can be used as a note for the money at which they are valued.

Another device is that of taking orders for some subscription book—in some cases the revised New Testament—and converting such orders into notes. Still another is the one operated by the pretended agent of a Bible or tract society who presents himself at a farmhouse about dinner time and accepts an invitation to dine, on condition that he may be allowed to pay for his meal. The society, he says, requires that he should pay his way, and, to prove that he has done so, he asks the farmer's signature to a form of receipt which he carries with him. In course of time this receipt comes back to the farmer in the form of a note for some sum of money filled in by the plausible swindler. A lightning-rod agent agrees to put up lightning-rods about a house for \$5, and presents a bill for \$105—\$100 for the rods and \$5 for putting them up. The collection of royalties on some patented article found in the farmer's possession, the sale of worthless receipts for the manufacture of fertilizers, the sale of rights for a worthless patent process for curing tobacco, the collection of fees by pretended officials, such as boiler inspectors, "the drive-well frauds," a variety of insurance frauds and the sale of worthless receipts for the cure of "hog cholera" or other animal diseases, are among the numerous swindling devices mentioned by the correspondents of the department.

As long as there is rascality on the one side and undue credulity on the other, such swindles will continue to be practiced to a greater or less extent; but they are now practiced successfully in many cases where they might be frustrated by the simple rule of refusing to deal with irresponsible parties without any known business standing or any fixed local habitation. The only additional precautions that suggest themselves as available to the individual are the exercise of reasonable care, the use of proper means to keep informed on agricultural matters, the education of farmers' children in business law, and the use of the facilities for mutual protection offered by such associations as the Patrons of Husbandry or other farmers' organizations. There are, however, some classes of frauds—such as the sale of fertilizers under false names and the manufacture of oleomargarine for sale as butter—which demand the efficient intervention of State and National authority. But even in this matter much

must depend upon intelligent concert of action among the farmers themselves, both in suggesting the proper legislation and in bringing to bear on legislatures the influence necessary to insure the proper action.—*Philadelphia Press.*

### The Philosophy of Vaccination.

Professor Tyndall explains the philosophy of vaccination as follows: "When a tree or a bundle of wheat or barley straw is burned, a certain amount of mineral matter is retained in the ashes—extremely small in comparison with the bulk of the tree or of the straw, but absolutely essential to its growth. In a soil lacking or exhausted of the necessary constituents, the tree cannot live, the crop cannot grow. Now, contagia are living things, which demand certain elements of life, just as inexorable as trees or wheat or barley; and it is not difficult to see that a crop of a given parasite may so far use up a constituent existing in small quantities in the body, but essential in the growth of the parasite, as to render the body unfit for the production of the second crop. The soil is exhausted, and until the lost constituent is restored, the body is protected from any further attack from the same disorder. Such an explanation of non-recurrent diseases naturally presents itself to a thorough believer in the germ theory; and such was the solution which, in reply to a question, I ventured to offer nearly fifteen years ago to an eminent physician. To exhaust a soil, however, a parasite less vigorous and destructive than the really virulent one may suffice; and if, after having, by means of a feeble organism, exhausted the soil without fatal result, the most highly virulent parasite be introduced into the system, it will prove powerless. This, in the language of the germ theory, is the whole secret of vaccination."

AMONG the decisions of Land Commissioner Sparks which gave offense to certain classes was the one that a person having proved up a pre-emption could not afterward take a homestead claim, and after a few months commute it by paying \$1.25 per acre, as it has been the custom of the Land Department to allow settlers to do. The commissioners held that such communication of a homestead after a pre-emption entry was equivalent to a second pre-emption. But the Secretary of the Interior has reversed this decision of Commissioner Sparks, putting the matter back upon the former methods of the Land Department. All the same, though, we believe the Commissioner was right and the Secretary of the Interior wrong in their decisions.—*The Farmers' Review.*

### Our Exchanges.

Some of our farmers report large numbers of chinch-bugs in the corn fields, the snow-drifts having protected them during zero weather.—*Osborne Farmer.*

William Crotty sowed six hundred dollars' worth of orchard-grass seed on his farm in Coffey county. This amount will seed about 150 acres.—*Junction City Union.*

A butcher of Frankfort promises to reform by the following, which he publishes in the *Bee*: "No more old toothless cows will be sold in my shops, and I shall kill nothing but first-class steers hereafter." We are satisfied the people of Frankfort will not object.

In order to have a representation on the State Board of Agriculture, all the county agricultural societies have heretofore held their election for officers on the second Tuesday in April. The law as it reads now compels the holding of these elections on the second Tuesday in December.

The *Journal of Cawker*, Mitchell county, tells of a Cawker man that attempted to give a pony a powder by putting medicine in a glass tube, and then placing one end of it in the pony's mouth and the

other in his own, intending to blow it down the animal's throat. The pony blew first and the man got the dose.

The money involved in the loss of 200,000 head of cattle in Texas, if the number be not exaggerated, would have erected shelter places from the storm for many times that number. The occurrence of these blizzards—"northerners"—every winter, it would seem, should suggest to prudent ranchmen some permanent protection for their herds.—*Lambeth County Democrat.*

A Clark county farmer killed over five hundred prairie dogs at one time by putting strichnine in hot water and soaking corn for four days in the mixture. He placed five or six grains of corn at each hole, and next morning the corn was all gone and the prairie dogs too. He states that this must be done before grass comes, as he thinks the dogs would not touch the soaked corn if they could get green grass.—*Osawkie Times.*

A Mr. McCleary, living west of Iuka, was caught in a prairie fire near his home last Sunday evening. He attempted to escape by setting a back fire, but the wind was blowing with terrible force and his matches could not be made to burn long enough to catch the dry grass. He was badly burned, but will recover. His team is permanently injured. Dr. McCoy, of Iuka, is attending the patient.—*Saratoga (Pratt county) Democrat.*

General Bragg will, at the next meeting of the House military committee, submit a bill embodying the recommendation of General Sheridan with regard to establishing a permanent school for instruction in cavalry and artillery drill at Fort Riley, Kansas, for which an appropriation of \$200,000 is asked; also for the completion and enlargement of the quarters and barracks at Forts D. A. Russell and Robinson, appropriating \$175,000 therefore.

This week one of our farmers gave us his experience with two calves—a scrub and a grade Shorthorn. The scrub had the advantage of age by a month or two, had run with the cow last summer, and they had been wintered together, each having an equal share. The grade sold for \$20; the best price the scrub could get was \$12. If there was a profit of \$2 in raising the scrub, the grade returned a profit of \$10, or \$8 in favor of a little "blood." The grade was no more trouble to raise, cost less, and paid well for the keeping.—*Glasco Sun.*

Gus Wingfield told us a timber story the other day. His family settled on the Humboldt in the spring of 1857. Recently Gus concluded to clear fifteen acres of bottom land, the timber on it having grown since his settlement there. From the fifteen acres, he has sold 300 cords of wood and 1000 fence posts. He has still on hand 100 cords of wood, and 5000 posts. There are \$1500 worth of wood and 5000 posts. There are \$1500 worth of wood and \$600 worth of posts, or \$2100. He thinks the field will pay better in corn, and he will crowd his timber to the hillsides and rough places.—*Junction Union.*

The complaints of bad roads is universal in Kansas this spring. The mud, while it has not reached the average Illinois depth yet, is deeper than has ever been known before in Kansas, taking the State over. We fear that the old glory of Kansas,—the "best natural roads in the world,"—has departed. It is time that the subject of road-making should be diligently considered. Little can be done while the present stupid and blundering road district system continues.

Some better general system should be devised, such as the township system which the *Champion* explained some months ago. Then the rock with which Kansas abounds should be utilized. Mud holes should not be filled up with other mud, but rock. Macadamized roads in the creek bottoms and stone bridges over the creeks are the ideas for Kansas.—*Atchison Champion.*

# THE INDUSTRIALIST.

SATURDAY, APRIL 3, 1886.

EDITED BY THE FACULTY.  
E. M. SHELTON, MANAGING EDITOR.

## Notes—Mostly Botanical.

In a recent number of the *Botanical Gazette*, an account is given of some of the botanical laboratories of the United States. The first one was that established at Harvard University in 1872. Very many have since been opened, and now fairly good laboratories may be found at all the large Eastern colleges and most of the State institutions in the West. In most cases, the laboratory is devoted exclusively to botanical work; in a few cases zoological work is also done in the same room. The compound microscopes furnished in each case number from ten or twelve to twenty-five or thirty, representing all American firms and several European makers. For elementary work, especially in histology, these American laboratories furnish opportunities equal to the well-known German ones; though the same cannot be said, of course, in respect to more advanced work. It might be added that our own college compares favorably, so far as appliances for botanical work is concerned, with other institutions, both East and West. In fact we are better equipped than the majority of colleges, though of course surpassed by many of the larger institutions.

Mr. Dowdeswell gives a short but interesting article in the *Journal of the Royal Microscopical Society* on the appearances which some micro-organisms present under different conditions, as exemplified in the microbe of chicken cholera. Correct specific diagnosis is impossible without a knowledge of the conditions under which variations in the morphological characters take place. He instances the description of the organism of chicken cholera as "a micrococcus of a figure-of-8 form, surrounded by a *petit halo*." This he says is correct under certain conditions and up to an amplification of about 800 diameters. If the preparation be dried and stained in the usual way, the appearances change so that there is no *halo*, outer envelope or capsule. If high powers—as 2000 diameters and upwards—be used, the "dumb-bell" or figure-of-8 shape, even in the same preparation—especially with more perfect methods of illustration—is found to be deceptive. They are, on the contrary, mostly cylindrical, and the apparent constriction giving the dumb-bell form seldom has an existence. If another method of staining be adopted, the appearances of the microbe are again totally changed. The *halo* or capsule in the latter case is visible, which therefore visible under some conditions and under others not, is not a good specific character. "From this demonstration it will be seen how different are the appearances of one and the same microbe, not only under the action of different reagents and methods of preparation, but even under different magnifying powers. This shows the absolute necessity, in investigating such organisms, of examining them under different conditions; and in the first instance, always in as natural and unaltered a state as possible, to learn their true characters, which are frequently materially altered by the mere drying on the color-glass."

An amoeba of extraordinary size has been described in *Science Gossip* by Mr. well.

Brayley. It was nearly one fifth of an inch long and about one fifteenth of an inch broad. This is ten times as large as any mentioned by Leidy.

Sketches of two early and eminent botanists of this country, namely, De-Schweinitz and M. O. Curtis, have been published—of the first in the *Journal of Mycology*, and of the second in the *Journal of the Elisha Mitchell Scientific Society*. De-Schweinitz was born in 1780 and died in 1834. He was the pioneer mycologist of this country, and discovered and described several hundred new species of fungi. M. A. Curtis was born in 1808 and died in 1872. Besides discovering many species new to science, he paid special attention to mycophagy, and demonstrated the fact that an enormous quantity of valuable food is to be found in the edible fungi of our country. Both these men were ministers by profession, yet did the work in their leisure moments that will doubtless make their names known yet to many generations of men. Their work was important as laying the foundation for the practical mycology of the day—whose relation to vegetable pathology is now beginning to receive proper attention.—Prof. Kelerman.

## Expenses.

Tuition is free, and no general fee for incidental or contingent expenses is charged. In a few special departments of instruction, the following payments are made in advance to the Secretary:—

In analytical chemistry, the students pay \$3 a term for the chemicals and apparatus used in their laboratory practice and analysis.

In the printing office, young men, in their first year, pay \$3 a term for office expenses. Advanced students have the use of the office for the work performed during the industrial hours.

In telegraphy young men pay \$3 a term for office expenses.

Young women are furnished both printing and telegraphy free of expense, these two offices, with the Sewing and Cooking Departments, being provided especially for their industrial training.

Lessons in instrumental music, two a week, are from \$10 to \$14 per term, according to its length; one a week, \$6 to \$8.40. One half is to be paid to the instructor in charge with the first lesson, the other half at the middle of the term.

The cost of text-books at the book-store is, for the first year about \$4 a term; for the second year, \$2.75; for the third year, \$7.50; and for the fourth year, \$5.50.

Board and washing are not furnished by the College. Board, with furnished room, can be procured in private families at from \$2.75 to \$4 per week. Some students board themselves at even less cost, and rooms for the purpose can be obtained at a rent of from \$1 to \$2.50 a month. Washing costs from \$0.50 to \$1 a dozen pieces.

Ordinary expenditures, aside from clothing and traveling expenses, range from \$100 to \$200 a year.

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## The Wheat Straw-Worm.

(*Isosoma tritici Riley*.)

BY WARREN KNAUS.

Kansas has long enjoyed the distinction of having the most numerous "beetle" fauna of any State in the Union. How soon she will enjoy (?) the reputation of possessing the most numerous injurious insect fauna, time and inattention to the importance of economic entomology alone can tell. The farmer now garners his crop after it has paid toll to the voracious Hessian fly, chinch-bug, web-worm, fall army-worm and wheat straw-worm. The last named is the latest and one of the most destructive insects the wheat-grower has to contend against.

The wheat straw-worm is a Hymenopterous insect—common representatives of this order being bees and wasps—and belongs to the family Chalcidae. As an injurious insect, it has inflicted fifty per cent more damage to the wheat crop of 1885, in the central and northwestern wheat counties of Kansas, than the losses occasioned by the ravages of the Hessian fly in the same counties.

This worm was first noticed in the wheat fields of Kansas toward the latter part of June 1885, although they may have been present and not observed the previous year. My attention was first called to them about June 30th, when on an examination of several fields of wheat in the vicinity of Salina, all were found badly infested. Many fields were almost entirely destroyed, every straw containing from one to three larvae.

Professor Snow was first apprised of the appearance of this insect by receiving specimens from Dr. M. H. Haskins, of Galva, McPherson county, who wrote on June 25th, saying that one fourth of the wheat in that vicinity had been injured by this worm.

Reports of its presence were also received by Prof. Snow from the counties of Morris, Ottawa, Osborne and Saline. In all those counties the damage inflicted by this worm was greater than that caused by all other wheat insects combined.

An examination of wheat fields in the counties of Dickinson, Cloud, Mitchell, Jewell, Smith, Phillips and Rooks, made during July and August, also revealed their presence in large numbers, inflicting fully one half the total damage to the wheat crop of those counties. In Mitchell county, the Solomon valley was comparatively free from them, the wheat, so far as observed, being but slightly damaged from this cause.

The reports of damage to wheat from the Hessian fly, in many of the above named counties, and in the counties of Ellis, Ellsworth, Lincoln, Marion, Norton, Trego and Russell, were undoubtedly erroneously referred to this destructive insect, the real damage having been inflicted by the wheat straw-worm.

The area thus depredated upon the wheat crop suffering from 10 to 75 per cent, extended from and included Marion, Dickinson and Clay counties on the east, to Russell, Ellis, Rooks and Norton on the west, and from Marion, McPherson, Ellsworth, Russell and Ellis on the south, to the northern line of the State. Other counties to the south and east of this area, while not reported, no doubt suffered from the presence of this insect.

The wheat straw-worm (*Isosoma tritici*) is described as follows in the report of the United States Commissioner of Agriculture, for 1881 and 1882. The description of the pupa is from Professor S. A. Forbes's Second Annual Report, for 1883, as Illinois State Entomologist.

## PERFECT INSECT.

**Female:** (male not described) length of body, 2.8 mm.; expanse of wings 4 mm.; greatest width of front wing 0.7 mm.; antennæ, subclavate, and three fourths the length of thorax. Whole body (with the exception of metanotum, which is finely punctate) highly polished and sparsely covered with long hairs toward end of abdomen; abdomen longer than thorax, and stouter; color, pitchy-black; scape of antennæ occasionally a small patch on the cheek, mesoscutum, femoro-tibial articulations, coxae above, and tarsi (except last joint), tawny; pronotal spot large, oval, and pale yellowish in color; wing veins dusky yellow and extending to beyond middle of wing.

Out of 24 specimens examined, 21 were wingless and only one was fully winged.

(Continued on 4th page.)

## General Duties and Privileges.

General good conduct, such as becomes men and women anywhere, is expected of all. Every student is encouraged in the formation of sound character by both precept and example, and expected "upon honor" to maintain a good réputation. Failure to do so is met by a prompt dismissal. No other rules of personal conduct are announced.

Classes are in session every week-day except Saturdays, and no student may be absent without excuse. Students enrolled in any term cannot honorably leave College before the close of the term, unless excused beforehand by the Faculty. A full and permanent record of attendance, scholarship and deportment shows to each student his standing in the College. After each monthly examination a report of advancement is made to parents; and any student, upon leaving College at the close of a term, may receive a certificate of standing.

Chapel exercises occupy fifteen minutes before the meeting of classes each morning, and unnecessary absence from them is noted in the grades.

Twice in each month the whole body of students gather for a lecture from some member of the Faculty, or for the rhetorical exercises of the third and fourth-year classes. On alternate weeks all the classes meet at the same hour, in separate class-rooms, for exercises in elocution and correct expression.

There are three prosperous literary societies, two of them of many years' standing. All meet weekly, in rooms set apart for their use. The *Alpha Beta* is open to both sexes, and holds its meetings Friday afternoons. The *Webster* and the *Hamilton* admit to membership gentlemen only, and meet on Saturday evening.

The Scientific Club, composed of members of the Faculty and students, meets in the Chemical Laboratory on the first Friday evening of each month.

Every Friday evening a students' prayer meeting is held in a College Society Room, led by a member of the Faculty. On the Sabbath students are expected to attend services at least once in the different churches of the city.

Occasionally during each term the College Hall is opened for a social gathering of faculty and students, in which music, literary exercises and friendly greeting find place.

Public lectures by prominent men of the State are provided from time to time, as opportunity offers. All are free.

The Manhattan Horticultural Society meets monthly, and other farmers' associations occasionally, at the College, and the students have the privilege of attending these meetings.

## A Good Education Pays.

1. In dollars and cents. All testimony of statistics agrees in showing that educated laborers, of all ranks, have better work and better wages than the uneducated.

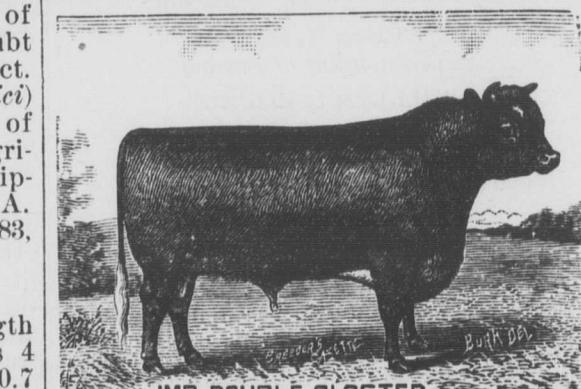
2. In influence and position. Careful estimates make it certain that the chances of promotion to places of trust and power among men are almost two hundred times as great to an educated man as to an uneducated.

3. In usefulness. The bulk of good work in the world,—discovery, invention, government, philanthropy and religion,—is brought about by those who learn to think by study.

## FOURTH ANNUAL Shorthorn Sale,

At Fair Grounds

MANHATTAN, RILEY CO., KANSAS.



TUESDAY, MAY 4th, 1886.

At 10 O'clock A. M. Sharp.

LUNCH AT 12 M.

## 45 WELL BRED 45 RECORDED SHORTHORNS

FROM THE BLUE VALLEY HERD.

TERMS:—Cash, or six months on approved notes, interest at ten per cent per annum.

CATALOGUES NOW READY.

WM. P. HIGINBOTHAM.

S. A. Sawyer, Auctioneer.

# THE INDUSTRIALIST.

SATURDAY, APRIL 3, 1886.

## CALENDAR.

1885-86.

FALL TERM.—Sept. 10th to Dec. 18th.

WINTER TERM.—Jan. 5th to Mar. 26th.

SPRING TERM.—Mar. 29th to June 9th.

June 9th, Commencement.

Persons receiving the "Industrialist" need have no fear of bills to come; for the paper always stops with the expiration of subscriptions, unless continued by favor of a friend or of the College.

## BONDS WANTED.

School District bonds issued on College blanks will bring their par value at once. Address T. P. Moore, Holton, Jackson Co., the College Loan Commissioner.

The next meeting of the Board of Regents will be held at the College on Tuesday, April 6th, at 3 P.M.

Requests for help from some member of the Faculty at a Farmers' Institute, to be held at Ellsworth about April 16th, have been received. The promise has been given, we believe, that some one shall go from here.

We this week publish an interesting article from the pen of one of our graduates, Mr. Warren Knaus, in which the life-history of a pest of the wheat field, likely soon to be all too common in Kansas, is given in full detail.

Mr. J. R. Goodwin, known of old for his work in connection with the Kansas City *Live-Stock Indicator*, and more recently as traveling correspondent of the *Breeders' Gazette*, of Chicago, gave us a pleasant call on Thursday morning.

Barteldes & Co., of Lawrence, Kansas, remember us this week with a collection of flower seeds, which, if as good as their grass and farm seeds have proved to be with us for a number of years, will insure us the handsomest posies on the Hill.

Attention is called to the advertisement in this issue of Mr. Wm. P. Higinbotham's annual Shorthorn sale. His catalogue of fifty-six pages, which was printed at the *Republic* office, is a neat one, and a copy can be had by addressing Mr. Higinbotham.

During most of the week the class in agriculture have spent the class hour in the barnyard in the examination of the different breeds of cattle, and the study of the points of the same. The relative development in different animals of "crops" and "twist" has been the object of careful study by committees of the class, acting after the fashion of committees of award at fairs.

The spring term, usually the weakest term in the year, so far as the number of our students is concerned, has come, and with it a scarcely appreciable diminution in our numbers. The classes are, almost without exception, large, and the Chapel exercises show almost a chapelful of students every morning, and the exercises move off in the old-fashioned big way, so long familiar to the students and visitors.

The news of the appointment of Jno. E. Hessian, of Manhattan, and J. H. Fullenwider, of El Dorado, as Regents of this College, was received with a good deal of satisfaction on the Hill on Wednesday. Mr. Hessian, an able, industrious attorney of strongly independent turn of mind, is certain to make a really useful working member of the Board. Of Mr. Fullenwider, less is known, but that little is greatly in his favor.

A class nearly fifty strong of second-year students begins work this week on the farm and in the nursery. Hauling manure, grinding, and caring for the stock, pruning and cleaning up the orchard, furnish occupation to the greater body of the class. Although a very large proportion of our students are farmers' sons, we notice that a very considerable number get their first lessons in hauling manure afield at the College Farm.

One of the sights at WaKeeney is the U. S. Land Office, which seems to be the center of healing for all the great multitude—which includes pretty much everybody in that country—suffering from the disease which is aptly named land hunger. Mr. Pilkenton, the receiver, informed us that anywhere from twelve thousand to twenty thousand acres of govern-

ment land are disposed of daily at the WaKeeney office, and that all the public lands in the district will be disposed of within three or four months.

Dr. W. J. Beal, of the Michigan Agricultural College, writes to ask us what we mean by the English blue-grass referred to in our article of last week, and which he says is quite unknown, at least by that name, in the East. We write for the one thousand odd farmers who read the *INDUSTRIALIST*, and make it a rule to shun a systematic name whenever we can do so and avoid obscurity. The English blue-grass of our article of last week is, botanically, the *Festuca elatior*; but every Kansas farmer knows it under the above common name.

This is the season when our manure crop is ripe—a little over-ripe one would say, judging from the rank odor it exhales when stirred—anyhow at this time of the year it best suits our convenience to haul it afield. Our experience, too, is tolerably conclusive upon this point, that it pays best to apply manure in quantity sufficient to make it count as far as it goes. We consider thirty loads applied to one acre nearly or quite equal to forty loads thinly spread over two acres of ground, and base the idea on reasons similar to those employed in proving large crops more profitable than small ones.

In view of the retirement of Regents Leland and Ellicott from the Board of Regents by expiration of their commissions, the following resolution, presented by Regent Moore, and adopted by the Board at its last meeting, becomes of immediate and permanent interest:

"Resolved, That we testify to the zeal, good judgment and faithfulness of Messrs. Leland and Ellicott, the retiring members of the Board, and to the courteous treatment we have received at their hands; and that we assure them that, when they cease to be members of this body, they carry to their homes our highest regards and best wishes for prosperity in all their undertakings."

This is the season when the local newspapers, with great unanimity, advise the farmer to sow and plant early in the season, assuring him that "the early bird catches the worm" and the early sower the big crops,—advice that is almost wholly mistaken, as we firmly believe. For three years at least, those who have planted corn early in this section have been compelled to replant, and in many instances content themselves with an inferior stand finally. Even those who have sowed oats early have certainly not had the heaviest crops; while in the matter of grass seeding, we have demonstrated on the College Farm, to our entire satisfaction, that the safest time in which to consign these expensive seeds to the earth is somewhere between the middle of April and the first of May. The storm of yesterday and today, during which the mercury has, at 10 A.M., stood at 26° pretty steadily, with the air full of snow and fully two inches of the same article on the ground, points our moral. In such weather we wish to see all of our seed grain in the granary.

The Farmers' Institute, held at WaKeeney last week, was a thorough-going success from the start. Of course, we have held Institutes which could show greater numbers in attendance, and others where the discussions were more exhaustive, but taking these things and others into account, the WaKeeney meeting was very satisfactory. The land agents, merchants and professional men, equally with the farmers, took hold of the work with that combination of zeal and intelligence which always brings success. Not only were the people living in the immediate neighborhood of WaKeeney present in force, but even remote points in Gove and Graham counties were represented. The members of the Faculty who attended the meetings speak particularly of Col. Tilton, of the *WaKeeney World*, who all these weeks, with a full head of steam, has been writing and talking up the Institute to "everybody and his neighbor." Mr. Ewalt, president of the Institute, Mr. and Mrs. J. W. Carson, Mr. and Mrs. Ben C. Rich and Mrs. Fuson, are also members prominent among those who by their works showed their interest in the cause. We are confident that all came away from this Institute feeling that good had been done.

## Objects.

This College now accomplishes the objects of its endowment in several ways.

First, it gives a substantial education to men and women. Such general information and discipline of mind and character as help to make intelligent and useful citizens are offered in all departments, while the students are kept in sympathy with the callings of the people.

Second, it teaches the sciences applied to the various industries of farm, shop and home. Chemistry, botany, entomology, zoölogy and mechanics are made prominent means of education to quick observation and accurate judgment. Careful study of the minerals, plants and animals themselves illustrates and fixes the daily lesson. At the same time, lessons in agriculture and horticulture show the application of science; and both are enforced by actual experiment.

Third, it trains in the elements of the arts themselves, and imparts such skill as to make the hands ready instruments of thoughtful brains. The drill of the shops, gardens, farm and household departments is made a part of a general education to usefulness, and insures a means of living to all who make good use of it. At the same time, it preserves habits of industry and manual exertion, and cultivates a taste for rural and domestic pursuits.

Fourth, it strives to increase our experimental knowledge of agriculture and horticulture. So far as means and circumstances permit, experiments are undertaken with a view to more definite results than ordinary experience can give. By this method the students themselves are trained to a more accurate observation and judgment in these practical tests of principles in farming.

Fifth, it seeks to disseminate such practical truths as have stood the test of scientific inquiry. For this purpose it publishes the *INDUSTRIALIST*; and its officers share in debates and consultations of farmers and horticulturists throughout the State. Each winter a series of six Farmers' Institutes is held in as many different counties of the State. In these the Faculty share with the people in lectures, essays and discussions upon topics of most interest to farmers.

## COLLEGE SOCIETIES.

**ALPHA BETA.**—Chartered, December 26th, 1870. Meets in the Society Hall every Friday at 2:30 P.M. Ladies admitted. New students cordially invited to attend.

A. M. GREEN, President

MISS IDA QUINBY, Secretary.

**WEBSTER.**—Chartered, January 1871. Meets in Society Hall every Saturday evening. Visitors, especially students, always welcome,

D. G. ROBERTSON, President

F. H. AVERY, Secretary.

**SCIENTIFIC CLUB.**—Meets on first Friday evening of each month. Composed of members of the Faculty and advanced students. Devoted to the improvement of its members in general scientific knowledge, and the encouragement of original investigations.

PROF. WALTERS, President

MRS. KEDZIE, Secretary.

**HAMILTON.**—Chartered January 29th, 1885. Meets every Saturday evening. Admits gentlemen only. Visitors always welcome.

G. W. WATERS, President

C. F. GOSS, Secretary.

The Y. M. C. A. meets at 3:30 P.M. Sunday.

D. G. ROBERTSON, President

C. A. MURPHY, Secretary.

The Y. W. C. A. meets Tuesday afternoon.

F. HENRIETTA WILLARD, President

NELLIE COTTRELL, Secretary.

## REPORTS.

SOCIETY HALL, March 27th, 1886.

The Websters in their usual good numbers were called to order by President Robertson. After the usual exercises of roll-call and prayer, the Society listened to a discussion of the question, "Resolved, That the Chinese must go." Affirmative, E. F. Nichols and J. U. Higinbotham; negative, J. Harrison and W. L. Morse. The judges gave their decision in favor of the negative; a declamation was given by A. E. Mize; reading by W. S. Hoyt; Reporter, L. H. Dixon. Mr. D. R. Summerville was proposed for membership. After recess, the Society proceeded to elect officers for the spring term. The result of the election was as follows: President, C. M. Breese; Vice-President, F. H. Avery; Secretary, W. J. Burris; Corresponding Secretary, John Harrison; Treasurer, W. J. McLaughlin; Critic, D. G. Robertson; Marshal, E. H. Snyder. The interest as well as the attendance at the meeting was good.

TEDDY.

SOCIETY HALL, April 2d, 1886.

The Alpha Betas and visitors came to order at call of President Green. The first exercise of the afternoon was music, Nettie Abell committee. G. W. Waters offered prayer. Emma Secret gave a recitation entitled, "Is it uphill all the way?" In the debate which followed, the question, "Resolved, That our desires have a greater influence on our daily life than our sense of duty," was discussed on the affirmative by D. W. Working, assisted by

Dora Van Zile, and on the negative by Lucy Van Zile, assisted by O. L. Utter. The decision was rendered in favor of the negative. The *Gleaner*, edited by Winnie Brown, was well written and well read. After recess, E. Ada Little favored us with a solo—"My gentle Harp." F. Henrietta Willard accompanied. Following this came election of officers, which resulted as follows: President, Ida Quinby; Vice-President, D. W. Working; Recording Secretary, J. W. Van Deventer, Corresponding Secretary, Ada Quinby; Treasurer, Tracy Winkler; Marshal, A. G. Rogers.

C.

SOCIETY HALL, March 27th, 1886.

The Hamilton Society came to order on the evening of March 27th at the usual hour. Roll-call showed many absences. Prayer was offered by Mr. Paddleford. This being the regular time for the election of officers, the following were chosen: N. E. Lewis, President; A. E. Newman, Vice-President; A. Walters, Recording Secretary; A. C. Cobb, Corresponding Secretary; H. H. Meyer, Treasurer; E. M. Paddleford, Critic; S. S. Cobb, Marshal; Mr. Hammerli was elected to fill the vacancy made by S. Snyder, on the Board of Directors. The following programme of exercises was carried out: "Resolved, That free trade would best advance the interests of the U.S.," was debated by H. H. Meyers and W. O'Harrow on the affirmative and E. M. Paddleford and S. S. Cobb on the negative. The judges decided that the negative presented the most forcible argument. Thus we find our Society workers not only acquiring self-possession and ease in speaking in public, but are also becoming familiar with leading political issues of the day. Following recess was an essay by S. L. Ellis; music, A. Walters; select reading, Z. E. Wright. The order of extemporaneous speaking was passed and Society adjourned.

ALE.

## MANHATTAN CARDS.

### Manhattan Hotels.

Cottage Hotel, \$1.00 per day.

Commercial House, \$2.00 per day.

### George Firestone.

Livery, Feed and Stable. East end of Poyntz Avenue.

### Higinbotham, Stingley & Huntress.

Merchants, proprietors Blue Valley Mills Manhattan, Kansas.

### Burgoyne's.

Photograph Gallery. Established, 1859. Opposite Purcell's Bank.

### Clother.

Wm. Knostman, Ready-made Clothing, Hats, Caps, and Gents Furnishing Goods. Opposite postoffice.

### Fox's Book Store.

COLLEGE TEXT-BOOKS, School Stationery, Pencils, Ink, Scratch-books, etc., etc. Manhattan, Kansas.

### Manhattan Clothing House.

Best goods and best prices. Boys, come and see us, opposite Purcell's.

LEMMON & KOLLER.

### Barber Shop and Bath Rooms.

In basement room opposite Purcell's. This is the place to get a good easy shave, a first-class hair cut, and a good, clean bath. Satisfaction guaranteed. Don't forget the place, but give me a call and be convinced.

P. C. HOSTRUP. Proprietor.

### Allen Bros.

Opposite the Postoffice, keep a full line of Groceries, Flour, Fruits, Candies, Nuts, etc. Their goods are fresh and first-class, and prices are low and Goods delivered free in any part of the city and on College Hill. We invite all to call, and we will endeavor to give satisfaction.

ALLEN BROS.

### Manhattan Bank.

E. B. Purcell, banker. J. W. Webb, cashier. A general banking business transacted. Bills of Exchange issued on all principal cities and towns of Europe. All collections have personal, faithful and prompt attention of our attorneys. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

### B. Purcell,

Corner of Poyntz Avenue and Second St., has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, &c., &c., &c. Goods delivered in all parts of the city, and at the College, free of charge.

### Kansas Educational Notes.

PROF. J. D. WALTERS.

The next meeting of the McPherson County Teachers' Association will be held at Lindsborg, on Saturday, April 10th.

The honorable board of school district No. 78, Washington county, think his excellency, the Governor of Kansas, a little to previous with his proclamation in regard to Arbor Day, and have appointed Friday, 16th day of April, as tree day for that district. They request all families in the district to bring trees and their dinners to the school-house on that day.

On Friday, March 19th, 1886, the patrons of the West Asher district accompanied their children to school, it being the last day of the term, bringing with them well-filled baskets and tubs. Just before noon R. F. Smith came in with a sack of apples. The teacher soon "caught onto their racket" and dismissed for noon, and gave the house into charge of the ladies, who, in due time, rang the bell for dinner; the call was answered by men, boys and maidens who were out on the play grounds. After refreshments and recreations, the school was called, and an hour was spent in literary exercises that were closed by a general spelling bee.—*Western Democrat, Beloit.*

The thirteenth monthly session of the Cowley County Teachers' Association met in the Central school-building at Winfield, Saturday, March 20th, with an attendance of sixty. The *Courier* gives a full report of the meeting, and concludes: "This was the last, best-attended and most interesting meeting of the year. One peculiar phase of the meetings is the cheering, which is conspicuous for its absence. Several of the addresses and papers contained genuine humor interspersed with hits that would do credit to anyone, but no cheering and very little laughter was perceptible. One would believe that the scene of humor was left out of the faculties of the pedagogue, but nothing could be more erroneous; they appreciate it, but do not see fit to make any demonstration." The officers for the ensuing year are: W. N. Rice, President; W. H. Lucas, Vice-President; Mattie Gibson, Secretary; Lizzie Wilson, Treasurer.

### The Bane of the Times.

The bane of the times is a most inordinate desire to be rich. It absorbs every faculty of the mind, every organ of the body. We have time for nothing else. Religious, domestic, social and political duties must give way when dollars and cents are in question. The dollar is so near the eye that it shuts off vision of wife, children, home, country and God. This is not simply a wrong—it is a crime. No one has a right to devote all his energies to the acquisition of wealth: man was not made to be merely a money-getter. He is capable of higher and more elevating pursuits. The greed of wealth for its own sake is always demoralizing; and this is what nine out of every ten of our people are after. They are determined to be rich by hook or crook, and are willing to sacrifice almost everything to accomplish it.

There are many crying evils resulting from this absorption of the whole man, in the race for money. One is the neglect of his children by the father. There are many men so overburdened with business that they rarely see their children in their waking hours, except on Sunday. They sometimes even need an introduction when meeting them on the street. The children we not only scarcely know by sight, but there is no acquaintance whatever with the character of their minds. The fathers do not know what their mental and moral growth needs,—cultivating and forcing or what demands dwarfing or cutting up by the roots. The training of children ought not to be left entirely to the mother, even though she be the more competent of the two in many respects to discharge this duty. Most nobly do the mothers attempt to supply the deficiencies of the fathers in this regard; and were it not for their self-sacrificing labors and untiring devotion in the training of their little ones, the race would rapidly degenerate. But it is impossible for many mothers to devote the time needful for this work. They need the aid of the father. He exerts an influence peculiar to himself: it inheres in the sex. The

mother does not and cannot possess it. Every child requires just this influence, and is wronged if he does not receive it. He is deprived of something essential to his high development. The parents must conjoin their efforts in the training of their children if they would bring out what is noblest and best in them. Any amount of wealth left to a child will never compensate for the lack of loving, wise, persistent training by the father.

If parents really desire to have their children fitted to perform well all their duties as men and women, they must devote time to their training when young, and the father should remember that he is constituted the head of the family. In him is the supreme authority vested, and he is made responsible for its enforcement in the household. Throwing this responsibility on the mother does not the least relieve him. That he may govern his children wisely and well, he should have more than a passing acquaintance with them. He should study their individual characteristics from earliest infancy. He should have a thorough knowledge of their dispositions, the trend of their minds, the strength of their passions, their firmness of will, the temptations most likely to assail them, etc. Without this acquaintance, no man can give his children the training that is best for them. Our aim should be to make our children our superiors.

In this way only can our race be improved, and we accomplish one great end of our being. Devote, therefore, less time to money-making, and more to the training of the children.—A. L. T., in *Wichita Eagle*.

### Grounds and Buildings.

The farms, with the stock, orchards, gardens, vineyards, forestry and ornamental grounds, are used for experiment and illustration. All that is not strictly experimental is managed with a view to highest economy and profit.

On the larger of the farms, upon an elevation at the western limits of the city of Manhattan, and facing toward the city, are the College buildings. All are of the famed Manhattan limestone, and surrounded by pleasantly-arranged and planted grounds.

College, 130 by 250 feet in extreme dimensions, arranged in three distinct structures, with connecting corridors. This building contains in its two stories and basement, offices, cloak-rooms, studies, chapel, library, reading room, model kitchen and dairy, sewing rooms, society rooms and ten class rooms.

Chemical Laboratory, one story, 36 by 99 and 46 by 75 feet of floor space, in form of a cross. It contains eight rooms, occupied by the Department of Chemistry and Mineralogy.

Mechanics' Hall, 39 by 103 feet, of two stories, occupied by the Carpenter shop and finishing room, Telegraph and Printing offices, and Music rooms.

Horticultural Hall, 32 by 80 feet, one story and cellar, having cabinet room, class room, work room and storage, with greenhouse attached.

Two stone dwellings, occupied by the President and the Professor of Agriculture.

Armory Hall, 46 by 96 feet, and two stories. This building, which has served many purposes, is now to be fitted for armory and drill room below, and for class room, laboratory and museum of the Department of Natural History.

The barn is of stone, 48 by 96 feet, with side-bill basement stables, granary, tool-room, etc.

The blacksmith shop, piggery, implement shed, and various out-buildings, are of wood.

### Labor.

Every encouragement is given to habits of daily manual labor during the College course. Only the one hour of daily practice in the industrial departments is required; but students are encouraged to make use of other opportunities for adding to their ability and means.

The College employs students, when possible, on the farm and in the gardens, shops and offices, paying wages varying in rate with accomplishment from eight to ten cents an hour.

All labor at the College is under the direction of the Superintendents of the departments, and offers opportunity for increasing skill and efficiency. In regular weekly statements, the students are required to observe business forms and principles, showing from their daily account when and where the work was performed. A few students who have shown especial efficiency are employed during the summer vacation.

The shops and offices are open afternoons and Saturdays for the accommodation of skilled students in work for their own advantage. Everywhere the student who works wins respect; and it is a matter of pride to earn one's way as far as possible.

(Continued from 2d page.)

*Larva*.—Length, 4.5 mm. (nearly 1-5 of an inch); first segments of body large, tapering gradually to terminal segment; color, pale yellow; mouth parts brownish, and mandibles well developed; antennae appearing as short, two-jointed tubercles; mandibles with two teeth; venter furnished with a double longitudinal row of stout bristles, a pair to each joint; each joint bears, also, laterally a short bristle; stigmata pale, circular, ten pairs, one on each of joints, 2 to 11.

*Pupa*.—The mature pupa is 3 mm. in length, by 1.8 mm. in transverse diameter. It is of a wasp-like form, and differs but slightly from the wingless imago, except that the legs and antennae are applied closely along the under surface and sides of the thorax and abdomen, and are enclosed in a thin, transparent pellicle. The general color is jet black, and the various spots and markings of the imago are visible through the pupal envelope. This is, in fact, so thin that it does not conceal even the hairs upon the abdomen.

The wheat straw-worm is single brooded, the female depositing her eggs upon the wheat in April and May. The young larvae penetrate the stem, complete their larval growth, transform to pupa from September to December, and complete their transformations to the perfect insect with the opening of spring.

The presence of this insect is shown by the premature ripening of the wheat head toward the top. The grains become shriveled; and when the worms are numerous, the kernels are almost completely aborted; and the straw is shortened.

In a number of fields examined, more than 50 per cent of the straws were infested, many containing two larvae.

The larvae are always found inside the straw, usually just above the joint, and toward the latter part of the summer frequently imbedded in the substance of the joint itself. It is seldom found above the topmost joint, and occurs more frequently above the second and third joints from the roots.

The larva does its work in the soft tissues forming the inner surface of the straw, biting and breaking the fibers, thus checking the flow of sap to the grains, and preventing a proper development and ripening. Frequently, the larva is found imbedded in the substance of the joint, having eaten its way downward from the inter-node above.

The work of the larva do not usually weaken the straw as it stands upright and does not break as when damaged by the Hessian fly. Other distinctions between the Hessian fly and the straw-worm are: the straw-worm is single brooded, and the Hessian fly double brooded.

The straw-worm does the greatest damage in June and July, when the Hessian fly is inactive. The straw-worm works on the inside and in the upper two thirds of the straw; the Hessian fly on the outside and near the root of the straw. The straw-worm gives no external indication of the locality of its work; the Hessian fly causes swellings at the place of occupation.

The history of the wheat straw-worm is comparatively recent, its habits as a destructive insect have been observed and attention directed toward it less than six years since. Mr. S. A. Forbes, in his second annual report, says that the species was first mentioned in July, 1880, by Dr. Thomas, in the *Prairie Farmer*, and by Prof. C. V. Riley, in the *American Entomologist*. It was at that time an injurious insect in the wheat fields of southern Illinois, but its life was so imperfectly known that it was several months before it was separated from closely-allied species and parasites, and correctly described and named. This was finally accomplished in March, 1882, by Prof. Riley, who bred the larva, and named the insect *Isosoma tritici*. He also pointed out the characteristics distinguishing it from the joint-worm.

In 1881 and 1882, Prof. Riley described and named a parasite of the wheat straw-worm from Tennessee. He also mentioned the reception of *Isosoma tritici* from Missouri, they occurring in fields that have been sown to wheat for four or five years in succession. In October, 1883, specimens of wheat straw from Stockton, California, supposed to be infested by Hessian fly, were found to contain large numbers of the wheat straw-worm. In 1885 its appearance in this State was marked by an extended

geographical distribution and extensive damage to wheat, suggesting its undoubted presence in considerable numbers in 1884.

From the structure and habits of this insect, remedial measures can be employed with more than the usual success when combating this class of enemies. As many larvae remain in the stubble—and nine tenths will so remain when the header is used—they can be effectively destroyed by burning the stubble instead of plowing it under, or allowing it to stand until the pupae transform in the early spring.

When infested wheat is allowed to stand uncut, and is so thin on the ground that it will not burn, the mower and rake can be used with success in getting the straw together, when it can be easily burned.

As a very small per cent of the larvae are destroyed by threshing, all the straw remaining in stacks in or near wheat fields should be burned during the fall or early winter. By doing this, the larvae and pupae that would otherwise, after transforming in the spring, attack wheat fields, are effectually destroyed. The usual absence of wings in the female, is also an effectual means of preventing the spread of the insect. By a rotation of crops the female is prevented from depositing her eggs on the young wheat plants; and if no wheat fields are contiguous to those infested, there is little danger of any considerable damage from this source.

The relative susceptibility of various varieties of wheat to withstand the attacks of this insect can also be used advantageously by the selection of those kinds of wheat which experience has shown the freest from attack and offer the greatest resistance when actually infested. Such, I think, the hardy, rapid and strong growing "Turkey" wheat will prove to be; and other varieties which the actual test will demonstrate to possess these qualities.

In combating this enemy, man has a valuable assistant in the insect world. The wheat straw-worm is itself the subject of attack, and has its greatest enemy in an insect closely allied to it, in appearance at least. It is parasitic on the straw-worm, and in examining fields in Saline county I found fully one half the larvae had been destroyed by this parasite (a species of the genus *Pteromalus*), which had afterwards eaten its way through the straw and escaped.

Where these parasites occur, the stubble should not be destroyed until they complete their transformations and escape, as they are then ready to continue their attack on the hosts.

Briefly, then, the most effectual means to be employed against the wheat straw-worm consists in burning the stubble, rotation of crops, sowing the most resisting varieties of wheat, and encouraging the presence of parasites.

### Entering College.

Applicants for admission at the beginning of the year, in September, must be at least fourteen years of age, and able to pass a satisfactory examination in reading, writing, arithmetic including percentage and interest, geography and elements of English grammar. Those applying later in the term must show sufficient advancement to enter the classes already in progress. Every effort should be made to begin with the first of the term, in order to advance with the class from the first.

Applicants of mature age who, for lack of advantages, are unable to pass the full examination may be received on special conditions.

Applicants for advanced standing in the course must pass examination in all the previous studies of the class to be entered; but, if they have pursued such studies in other institutions of similar rank, they may receive credit for their standing in those institutions upon presenting a certificate from the proper officer, showing that their course has been equivalent to that given here.

### Board and Rooms.

No provision for rooms and board is made at the College. The students all find homes in families or in family boarding-houses, at rates varying from \$3.00 to \$4.00 a week for board with furnished room. Lists of boarding-places, with prices and accommodations, can always be had at the President's office, and students are required to notify the President of their rooms when selected.

Lists of rooms for rent without board may also be had by those who wish to board themselves. Directions and advice are gladly given by any of the officers.

# THE INDUSTRIALIST.

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KANSAS STATE AGRICULTURAL COLLEGE.

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No. 34.

## KANSAS STATE AGRICULTURAL COLLEGE.

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### COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.  
College Lands and all business connected with their sale are in charge of the Land Agent.

Bills against the College should be presented monthly, and, when audited, are paid from the office of the Treasurer, in Manhattan.

All Payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka.

The INDUSTRIALIST may be addressed through Prof. E. M. Shelton, Managing Editor. Subscriptions are received by Supt. Geo. F. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Kellerman, chairman of the committee on Museums.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding places, etc.—may be obtained at the office of the President or by letter.

### Fat Globules in Milk.

There has been a great deal of speculation and discussion among dairymen and scholars regarding the character of fat globules in milk, and especially regarding the philosophy of churning. Men whose opinions have been accepted as high authority have contended that the fat globules in milk are encased in membranous coverings like the skin of an apple or an orange, and that the object of churning is to break or destroy these globe covers, and thus set the fat free, when it will be in condition to adhere to the fat of other globules similarly set free. Churns have been constructed with this accepted theory in view, and it has been claimed that certain motions given the cream while in the churn were particularly conducive to this breaking up or peeling off of the membranes. Others have denied the whole theory of membranes, claiming that the form of the churn is of secondary importance in the work of changing cream into butter.

It should be a part of the work of agricultural experiment stations to investigate questions of this nature, and if possible to answer them so they will stay answered. We are glad to note that the New York State Experiment Station, under the directorship of Dr. Sturtevant, has during the past year been making a special study of the fat globules in milk. Dr. S. M. Babcock, chemist to the Station, contributes a paper to the 1885 report that would seem to settle the membrane question beyond further dispute or discussion. His experiments show that the fat in milk is free fat, and exists in the form of an emulsion with the serum of the milk. The term *emulsion* is usually applied to mixtures of oil with other liquids, as water, for which they have no natural affinity. These mixtures are prepared by means of a third substance, which is soluble in the water or aqueous portion, and gives it a certain viscosity. Sugar, mucilage or soap may be used for this purpose. Kerosene oil may be mixed with water for spraying foliage to kill insects by using a quantity of soap or milk in the water. Dr. Babcock finds that any substance which renders a liquid when shaken with air capable of forming bubbles that will remain sometime without breaking, may be used in forming emulsions. The emulsion is formed by vigorous stirring of the substances together, by which means the oil is broken into small particles, which do not again readily unite with each other, being separated by the thin film of liquid analogous to that which separates bubbles of air in soap suds. "A free emulsion," says Dr. Babcock, "when once formed, may be diluted to a large extent without destroying its properties; but afterwards, if allowed to stand for a sufficient time, the fatty portion will separate, forming a layer, which, however, is still an emulsion and not free fat, the globules being separated from each other by a film of liquid, and may be again diffused throughout the whole volume by gentle shaking. Alcohol and acids are quite incompatible with the formation or permanence of emulsions."

He finds that the analogies which exist between artificial emulsions and milk are numerous and in many cases quite obvious. The microscopic appearance of the fat globules is identical in the two. The sharp refractory rings which surround the globules of milk, and which have often been mistaken for membranes by persons unskilled in the use of the microscope, are equally sharp in an artificial emulsion of the same fats. Adding water to cream and to the artificial emulsion have the same effect, rendering the movement of the globules more free. Churning under similar temperatures has a similar effect on both. When cream or an artificial emulsion is churned at a high temperature, above the melting point of the fats, the agitation instead of gathering the globules, divides them continually, thus increasing their

number, which explains why "the butter does not come" when the churning is done in a hot atmosphere in summer.

Experiments were made at the Station in counting and measuring fat globules before and after violent agitations of a measured quantity of cream and of an artificial emulsion. In each case, while the number of globules was greatly increased by the agitation and the size diminished, there was no other change whatever observable in the appearance of the globules; no distortion of shape, and no broken membranes discovered. The action of alcohol, ether or acids applied to both the natural and the artificial emulsion is similar.

One of the lessons to be drawn from these investigations is that churning need not be constructed with a view to break or grind off the membranes of the butter globules in cream, for there are no membranes to be broken. Churns with the fewest floats or internal devices for increasing the friction while churning will injure the butter the least, which fact accords with the late tendency in the practice of the best butter-makers.—*New England Farmer.*

### A Nation of Swine-Eaters.

Americans are a nation of swine-eaters, who, with some help from foreigners, annually eat very nearly their weight in pork. The real average of home consumption can be little less than 75 pounds to each inhabitant, and the surplus exported has been, when at its height, 20 to 24 pounds more. We certainly eat more pork than England consumes of beef, after duplicating the allowance of that prime article in the British nation; and we far exceed the French quota of all meats in pork products alone, and surpass by a still larger measure every other continental country. Iowa, Missouri, and Kansas have larger numbers of swine than all Russia, with 60,000,000 of people to feed. Indiana and Illinois have as many as Austria and Hungary, and, with Kentucky and Ohio, more than all the swine of the German Empire; and Tennessee, Arkansas and Texas, more than the numbers in France. The wonderful elasticity of this industry is worthy of notice. As with corn, there is never a famine or a glut: a small crop will suffice; a large one only makes greater abundance and lower prices. In both cases the main consumption is at home. No good patriot can wish to export corn from the Missouri to Liverpool at a cost of 25 cents for transportation of a bushel, that may, perhaps, be bought for 20 cents, when pork or lard can be sent from the farm to the same market for a tenth of its home value.—*J. R. Dodge.*

### Railroad Tie Plantations.

Hon. R. W. Phipps, Forestry Commissioner of Ontario, in a letter from southern Kansas to the *Toronto Globe*, writes:

"One railroad board here, knowing that the growing of wood, when set about in earnest, is neither a slow nor difficult task, has established in Kansas the largest artificial plantation of forest trees in North America. These railway gentlemen themselves gave out the contract for planting over a square mile of land with young saplings of the catalpa and ailanthus; and their president, observing the success of their experiment, and impressed with its probable financial results, has planted at his own expense, as a speculation, as much more. These are situated near the little town of Farlington, Kansas."

THE Chihuahua (Mexico) *Enterprise* reports the discovery of some remarkable ancient ruins on a hill or mountain four leagues south of Magdalena, in Sonora. The hill is about 700 feet high, and half way up there is a layer of gypsum, which is as white as snow, and may be cut into any conceivable shape, yet sufficiently hard to retain its shape after being cut. In this layer of stone are cut hundreds

upon hundreds of rooms from 6x10 to 16x18 feet square. So even and true are the walls, floors and ceiling, so plumb and level, as to defy variation. There are no windows in the rooms, and but one entrance, which is always from the top. The rooms are but eight feet high from floor to ceiling. The stone is so white that it seems almost transparent, and the rooms are not at all dark. On the walls of these rooms are numerous hieroglyphics and representations of human beings cut in the stone in different places; but, strange to say, all hands have five fingers and a thumb, and the feet have six toes. Charcoal is found on the floor of many of the rooms, and implements of every description are to be found. The houses or rooms are one above the other to three or four stories high, but between the stories there is a jog or recess the full width of the room below, so they present the appearance of large steps leading up the mountain.

### Our Exchanges.

The practical benefits of a revival are thus sent forth by the *McPherson Freeman*, which says, after a stirring revival sermon Sunday night by Evangelist Wilson, one brother who had been lending his money at two per cent a month became conscience-smitten, and arose, made a confession, asked pardon, and promised to no longer lend at two per cent. There is yet hope for all men, when a sermon can bring down interest from two per cent to a legal rate.

A man named Clerry, from Jewell county, passed through town yesterday on his way to Clark county to find him a new home. Thirteen years ago he settled on 160 acres of land in Jewell county. Three years after, he became disgusted with the country; he sold out for four yearling heifers and five dollars in money, and left for Missouri. One year ago he returned to Jewell county to find that his once worthless farm could not be bought for less than \$3000. There are thousands of similar cases happening all over the great northwest.—*Downs Chief.*

A system of business, and protective combination, which would have enabled that man Hall to have got another job in a few days, would be infinitely preferable to the one which has cost other people a hundred millions of dollars. The laboring men who have lost a month's wages could have made Mr. Hall a present of \$100,000, and it would only have cost them about a cent apiece. But there are farmers, laboring men, mechanics, merchants, and millions of others in this country, who do not tend switches, or do other work for railroad companies, upon whom this foolishness falls, and it is time they got up and sit down hard on it. But cowardly politicians in office should be cleaned out first.—*Junction City Union.*

Several farmers in this locality will plant large fields to sunflower seed the coming season. The good results met with by the one or two parties who engaged in the business here last year has spurred others up to the belief that the sunflower industry in this section is a money-making, labor-saving, industry. One bushel of seed will plant 12 acres. Plant in hills the same as corn, the distance apart and put from two to three seeds in a hill. The time for planting is from the middle of May forward, but never make the planting extend too far into June. Cultivate three times, and if the soil is very foul, hoe once and cut all the weeds out of the hills. When the seeds ripen in the fall, and just before they begin to shell out, the head must be cut off from the stalks, similar to broomcorn, and placed in bins free from dampness, and allowed to dry, after which it is very easily and quickly threshed and cleaned by flailing and fanning, and it is then ready for market.—*Louisville Republican.*

## THE INDUSTRIALIST.

SATURDAY, APRIL 10, 1886.

EDITED BY THE FACULTY:  
E. M. SHELTON, MANAGING EDITOR.

In conversation with the conductor of a passenger train on the Union Pacific road recently, he remarked that his train is now carrying about 100 settlers per day to the western part of the State. Now, on the supposition that the Santa Fe road is carrying as many, this means a good deal. It means the landing of 6000 men per month, or 18,000 for the three spring months, in this western country. It means an average of eighteen or twenty thousand men, representing eighty to one hundred thousand mouths to feed, thrown, with more or less means into this great country, which is productive only of brilliant possibilities as yet. It means a pretty general testing, as far as is possible in one season, of the capabilities of that portion of our State for tree-growing, and cattle-raising without shelter. It means many failures, for the reason that people emigrate to a new country with nothing but their hands to work with, and expect to make a living among hundreds of others in the same condition. They demand of farming what they would never think of asking of any other occupation on earth—a living without capital; and in no other vocation are the disappointments so few in comparison with the number engaged.

Perhaps the most conspicuous failure that will be shown at the end of the season will be in the line of attempts at tree-culture. Many of these settlers will take timber claims, and will try also to raise windbreaks around their houses and barns, and, with no knowledge of the conditions of tree growth, or the kinds which will succeed best, or the absolute necessity for cultivation both before and after planting, will fail. This subject of tree-culture is of vast importance to this portion of the State, as upon its success depends the reclaiming of the land from its desert condition and the consequent success of agriculture.

To such as desire the experience obtained by practical men in forest tree culture in the West, we can commend the report on Forestry of the State Horticultural Society.—*Supt. Graham.*

### Women and Farmers' Institutes.

In very many of the Farmers' Institutes held through the State during the past five years, the wives and daughters of the farmers have not, as a general rule, felt interested enough to attend. A few would come to one or two meetings, but finding scarcely any ladies present, they became discouraged and stayed away. In the later Institutes, especially in the frontier towns, the ladies seem as much interested as any one. A prominent place is given them on the programme, and they join in discussion with earnestness and good sense.

This is as it should be. One of the Institute workers aptly remarked that "the children are, after all, about the best crop we raise;" and it is quite as fitting that a paper on "Home Training" be fully discussed as that we talk of the kinds of wheat to sow; and the mother is fully awake to the best thoughts that can be given on ways to make of her boy a thoroughly good manly citizen, or of her girl the noble true woman she designs her to be. And not only in the home circle proper does the woman on the frontier town have an interest. An

able and pleasant paper read not long ago on "Weeds and Fences" gave good evidence that a woman knew and thought much on even such things; and a woman's plan for caring for her ranch, during the necessary absence of her husband for months at a time, proved conclusively that not only are the farmers interested and benefited, but the farmers' wives have fully as keen interest in the exchange of ideas for the improvement of all the possessions, whether out of doors or in. The Farmers' Institute is for the whole family, and it is a pleasant thought that the whole family can enjoy and appreciate it.—*Mrs. Kedzie.*

### The Meeting of the N. E. A.

One of the big things to occur in Kansas during the coming summer will be the meeting of the National Educational Association, at Topeka, on July 9th to 16th. We wish we had the means of reaching every teacher in the State so that he might be urged to be at Topeka during this meeting. It will be an event in the lives of many of the Kansas teachers who do attend. You will meet there men of the greatest prominence as educators and whose reputation is not bound by State lines. You will hear discussions of matters pertaining to your business by men who have grown hoary in the service, and who bring you the fruits of their ripe judgment and experience, and offer them for the taking. You will get hotel fare at from \$1.00 to \$2.00 per day and railroad fare at one half regular fare to and from Topeka. You will meet teachers from nearly every State in the Union, and by this contact will have your ideas expanded to many times the money value of the expense incurred. You will have the advantage of many pleasure excursions in company with the pleasantest people in the world—to the Rocky Mountains, to the Pacific coast and to Old Mexico. In short, no effort will be spared to make the week between July 9th and 16th, 1886, a memorable one to teachers who attend the meetings of the National Educational Association at Topeka.

Write to President N. A. Calkins, of New York, for a bulletin, and read for yourself.—*Supt. Graham.*

### Let the Children Earn Something.

If more children were taught the use of money—the value of money counted by labor—there would certainly be fewer newspaper comments on business failures, fewer bank cashiers running away, and fewer helpless women who are obliged to become dependent on some relative because they cannot earn their own living. Every child ought to be allowed some money of his own; he ought to earn it; and he ought to be obliged to use it for some specific purpose. If he never be given money to spend on sweeties, he will soon learn that he does not quite want to spend *all* he has on those. If a girl be allowed only her own money for ribbons, she soon learns to be cautious as to durability, and to inquire if that has a fast color before spending her own money for a new piece.

The most business-like women grow from the girls who when quite young are given a certain allowance and are obliged to make all their clothing come out of that. It seems quite wonderful how well one can dress on a comparatively small sum if she can know how to calculate upon just what amount she will have. One girl, the daughter of a rich man, has twelve dollars and fifty cents each month. She knows she can have no

more, and, in order to make that go as far as possible, she learned to make her own dresses; and with herself as seamstress, she dresses well on what would seem to many in her position a very small sum.

A girl who is allowed to go to a store and buy whatever she will, having it charged, will find herself buying many articles she does not really need, and, worse than all else, will, if the time comes when she must do for herself, find herself with no definite idea of what money is worth.

To a woman, the being obliged to ask for every dollar needed is not a pleasant part of life; especially if a woman has been earning her own living before going into her husband's home, does it come as a bitter task to ask for what should rightfully be, and what is, half hers. The happiest women in homes of their own are those who either have a certain sum for their own use, or have a right of way to a common purse. All the joking about the change in the vest pocket disappearing, and about buying Christmas presents and having the bill sent in afterward, is very humiliating to a woman's sense of honor, and ought not to be. A woman has as much right to money as her husband. In many cases, it is true, the reason a woman is not given more liberty with money is because she is not a better manager; but, if as a child she were allowed to earn a little and spend it in her own way she would grow up with much more appreciation of what money costs. Children cannot begin too young to earn money. If it is only a little—one egg for every dozen they find, pay for carrying the milk, a few cents per week for washing dishes, or bringing in the wood or coal or kindlings, so much for every towel they hem; or they may keep hens of their own, or a pig, or care for their own calf along with the other cattle,—how much more interest they will take! There are an infinite number of ways in which a child can earn money, and that, too, without paying him for his little kindnesses to the home people either; and, then, he has an almost inexpressible feeling of pride and independence when he buys something with his own earnings. There is no better servant in the world than this same money; but to be of most use, it must be rightly managed, and only experience can teach that lesson properly.—*Mrs. Kedzie.*

### Earnings.

The labor of the students in the industrial departments is principally a part of their education, and is not paid for unless the student is employed—outside of required hours of labor—upon work for the profit of the College. Students are so employed upon the farm, in the gardens or the shops, and about the buildings. The labor is paid for at rates, varying with service rendered, from eight to ten cents an hour. The Superintendents strive to adjust their work to the necessities of students, and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly pay-roll for the past year ranges from \$377 to \$456.

Many students obtain work in the city or upon neighboring farms, and so pay a part of their expenses. Students employed in the shops are allowed to work somewhat for their own profit, in the manufacture of articles for sale and use. In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide by earnings outside of term-time, or from other sources, for the larger part of their expenses. The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education if he has the ability to use his chances well.

### College Finances.

The following statement of balances from the Secretary's books shows the actual condition of the various funds, March 31st, 1886.

#### ENDOWMENT FUND.

##### In State Treasury:

School bonds:	
10 per cent.....	\$ 26,682.13
7 per cent.....	86,664.79
6 per cent.....	155,646.34
	\$268,993.26

##### Municipal bonds:

10 per cent.....	\$ 3,400.00
8 per cent.....	5,000.00
7 per cent.....	3,200.00
6 per cent.....	121,300.00
	\$132,900.00

##### Real estate securities:

8 per cent.....	\$ 5,300.00
7 per cent.....	1,340.00
Land contracts, 10 per cent.....	74,419.04

Total.....	\$482,952.30
Cash.....	\$ 24,511.68
Less warrants outstanding.....	\$2,100.00

##### With Loan Commissioner:

School bonds:	
6 per cent.....	6,000.00
	8,100.00
	16,411.68

Total Endowment.....	\$49,363.98
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##### Acres of land..... 160

#### INCOME FUND.

##### In State Treasury:

Cash.....	\$2,156.00
Less war'tnts outstanding, 2,000.00	\$156.00

##### In College Treasury:

Cash.....	1,368.17
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Total balance.....	\$1,524.17
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#### APPROPRIATIONS, 1885-86.

##### In State Treasury:

Experimental barn.....	\$279.70
Laboratory steam heat.....	140.26
Salary, Loan Commission-er.....	50.00
General repairs.....	43.97

Museum building.....	\$3,000.00
General repairs.....	1,400.00
Cattle sheds and cribs.....	1,100.00
Salary, Loan Commission-er.....	300.00

	\$5,800.00
	\$6,413.93

##### Less approved bills:

Experimental barn.....	.95
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##### Actual balance.....

	\$6,412.98
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#### A Good Education Pays.

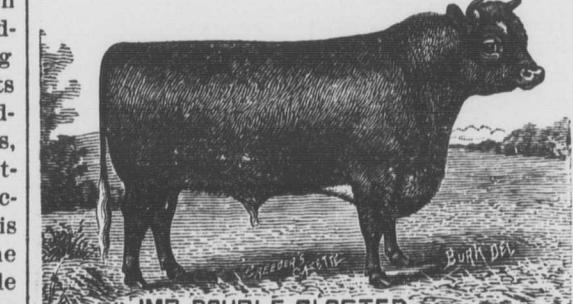
1. In dollars and cents. All testimony of statistics agrees in showing that educated laborers, of all ranks, have better work and better wages than the uneducated.
2. In influence and position. Careful estimates make it certain that the chances of promotion to places of trust and power among men are almost two hundred times as great to an educated man as to an uneducated.
3. In usefulness. The bulk of good work in the world,—discovery, invention, government, philanthropy and religion,—is brought about by those who learn to think by study.

#### FOURTH ANNUAL

## Shorthorn Sale,

At Fair Grounds

MANHATTAN, RILEY CO., KANSAS.



IMP. DOUBLE GLOSTER

TUESDAY, MAY 4th, 1886.

At 10 O'clock A. M. Sharp.

LUNCH AT 12 M.

45 WELL BRED 45  
RECORDED SHORTHORNS

FROM THE BLUE VALLEY HERD.

TERMS:—Cash, or six months on approved notes, interest at ten per cent per annum.

CATALOGUES NOW READY.

WM. P. HIGINBOTHAM.

S. A. Sawyer, Auctioneer.

# THE INDUSTRIALIST.

SATURDAY, APRIL 10, 1886.

## CALENDAR.

1885-86.

FALL TERM.—Sept. 10th to Dec. 18th.  
WINTER TERM.—Jan. 5th to Mar. 26th.  
SPRING TERM.—Mar. 29th to June 9th.  
June 9th, Commencement.

## BONDS WANTED.

School District bonds issued on College blanks will bring their par value at once. Address T. P. Moore, Holton, Jackson Co., the College Loan Commissioner.

The Farm Department is the purchaser of considerable corn now-a-days; twenty-seven cents—two cents above Manhattan prices—is about the ruling price paid.

Bishop Ninde, the eminent Methodist, led the Chapel exercises on Monday morning. On account of a severe cold, the Bishop was unable to gratify the ardent wish of many to hear him speak.

Mr. J. E. Rastall has just got back into newspaperdom, as everybody knew he would, by the purchase of the Carbondale *Calender*. He will carry into his new field the good wishes of scores of Kansas editors.

The Board of Regents has come and gone, transacting a good deal of business meanwhile, and now things have settled into the old channels. What was done by the Board at the late meeting is given in detail by President Fairchild.

Electricity, generated principally by slipping belts, has been of such annoyance about our large press of late, that we have been compelled to discharge the machine by connecting it, by means of a wire, with the cistern. The wire does its work well.

The "Wit and Humor of Two American Authors"—the authors being Artemus Ward and Dr. Holmes—was the subject of Prof. Nihart's interesting lecture given in the Chapel yesterday afternoon. Aren't biographical and semi-historical subjects getting to be very popular with our Faculty lecturers?

New students continue to arrive almost every week, the total enrollment for the year footing up at date exactly 427. This is an increase of about thirty over the enrollment of last year, and serves to enforce the idea expressed in these columns recently, namely, that the Kansas Agricultural College is now upon a basis of substantial merit and real popularity, beyond the possibility of serious danger from hard times.

Col. Harris sends us the catalogue of Short-horn cattle to be sold by him at Riverview Park, Kansas City, on Wednesday, May 19th. The catalogue is a very handsome and complete affair, and an examination of the pedigrees shows for the animals to be sold the highest breeding character, many being purely of the breeding of Amos Cruickshank, several coming directly from the Sittiton herd. We have carefully examined every individual to be sold, and know that there is not a weed in the lot.

The regular annual "blow out" was given the Regents and Faculty and their wives in the College dining room on Tuesday evening. This was the last chance of the season for the class in cooking, and it must be admitted that they got in their work in good style. The oratorical part of the exercises was only so-so, everybody present being averse to speech-making. This fact, we suppose, amply shows the excellence of the menu; for we have often observed that the food and speeches on occasions of this kind sustain to each other inverse relations as to amount and quality. It seems needless to say that the occasion was one of real pleasure to everybody present.

## BOARD MEETING.

The meeting of the Regents on Tuesday, April 6th, found all present, Messrs. Hessian and Fullinwider filing the oath of office in due form.

The Board effected a speedy reorganization by election of the following officers:

President, Thos. Henshall.  
Vice-President, A. P. Forsyth.

Treasurer, J. E. Hessian.

Secretary, G. T. Fairchild.

Loan Commissioner, T. P. Moore.

The President announced the following standing committees:

Farm Department—Regents Forsyth, Fullinwider and Henshall.

Horticultural Department—Regents Moore, Hessian and Forsyth.

Grounds and Buildings—Regents Hessian, Fairchild and Fullinwider.

Finances—Regents Lemmon, Fairchild and Hessian.

Employees—Regents Fairchild, Lemmon, Moore and Henshall.

Various reports upon particular interests of land contracts, delinquent bonds, and the general reports of officers, were received and considered.

In the joint meeting of Board and Faculty in the evening, found all the members of both bodies in attendance, and all took part in brief statements of work and plans or in comments upon the work.

The forenoon of Wednesday was given up to the routine business of auditing accounts of Treasurer, Secretary and Loan Commissioner, including final settlement with Mr. J. T. Ellicott as Treasurer. Vouchers for the quarter ending March 31st were examined with accounts and approved, being Nos. 462 to 691, amounting to \$9384.81 for current expenses, and \$525.49 from special appropriations. The bond of the College Treasurer was fixed at ten thousand dollars.

The sessions of Wednesday afternoon and evening were occupied with details of departments and committee work.

The purchase of books, according to lists presented by the Faculty, was left for consideration at next meeting, except that the Library committee were authorized to expend \$50 for special works.

The committee on Grounds and Buildings were instructed to perfect plans and specifications for remodeling the Museum building; to provide inside blinds for the Drawing room, and screens for doors and windows of the President's house; to rebuild a portion of east wall of the farm. Prof. Shelton was authorized to expend not to exceed \$100 in fencing upon the fields north of the barn.

Prof. Popenoe was authorized to employ assistance in entomological experiments and collection for the next six months at an expense of not more than \$40 per month.

A Library carpet was provided for at expense not to exceed \$75.

Some changes contemplated by the Faculty in the forthcoming catalogue were approved by the Board.

Other matters of expenditure under contemplation were postponed to future meetings for lack of funds for immediate use. Necessary current expenses were understood to continue as usual. It was voted as the sense of the Board that no change is at present needed in the office of Land Agent. The Secretary was directed to notify the few delinquent purchasers that unless settlement is effected within thirty days from notice, the lands now held by them will be placed upon the list for sale as reverted according to law.

The bond of Regent Hessian as Treasurer was approved, and the Secretary was directed to furnish an order for transfer of all funds and appurtenances of the office, upon which the present Treasurer shall settle with the Ex-Treasurer on the basis already fixed by the Board.

Minor details of business with individual cases were satisfactorily disposed of, and the Board adjourned to meet on Tuesday, June 8th, at 9 A. M.

## COLLEGE SOCIETIES.

ALPHA BETA.—Chartered, December 26th, 1870. Meets in the Society Hall every Friday at 2:30 P. M. Ladies admitted. New students cordially invited to attend.

MISS IDA QUINBY, President.

MISS IDA QUINBY, Secretary.

WEBSTER.—Chartered, January, 1871. Meets in Society Hall every Saturday evening. Visitors, especially students, always welcome.

C. M. BREESE, President.

W. J. BURTIS, Secretary.

SCIENTIFIC CLUB.—Meets on first Friday evening of each month. Composed of members of the Faculty and advanced students. Devoted to the improvement of its members in general scientific knowledge, and the encouragement of original investigations.

PROF. WALTERS, President.

MRS. KEDZIE, Secretary.

HAMILTON.—Chartered January 29th, 1885. Meets every Saturday evening. Admits gentlemen only. Visitors always welcome.

N. E. LEWIS, President.

A. WALTERS, Secretary.

The Y. M. C. A. meets at 3:30 P. M. Sunday.

D. G. ROBERTSON, President.

C. A. MURPHY, Secretary.

The Y. W. C. A. meets Tuesday afternoon.

F. HENRIETTA WILLARD, President.

NELLIE COTTRELL, Secretary.

## REPORTS.

SOCIETY HALL, April 9th, 1886.

Society was called to order by President Green. Prayer was offered by Mr. Working. A quartette, "The Swiss Girl," was furnished by the committee, Marian Blachly. The Society then proceeded to examine and install the officers-elect; and, after a tedious examination by the committee, Messrs. Whaley and Harbord and Miss Hopper, they were pronounced fully qualified to fill their respective offices, and were administered the oath of office. After valedictory from the out-going and inaugural from the in-coming President, the Society listened to an amusing extract from the "Widow Bedott Papers" by Lillie Bridgeman. Following an essay by O. B. Detweiler, came debate on the question, "Resolved, That adversity is of greater use to mankind than prosperity." The affirmative was presented by L. B. Parker and Ada Quinby, and the negative by W. E. Thackrey and Ada Little. Judges decided in favor of the negative. The *Gleaner* was presented by Amy Rhodes. Next came music, a male quartette, by Messrs. Platt, Jones, E. A. and L. B. Parker; and after business the Society adjourned.

Q.

SOCIETY HALL, April 3d, 1886.

President Waters called about twenty Hamiltons to order at the usual hour. Roll-call. Prayer by J. Hammerli. The officers elected at the last meeting were then inaugurated. At the call "Inaugural" from the members, President Lewis delivered his opening address. Ex-President Waters then delivered his closing address at the call "Valedictory." The regular programme was then taken up. The question "Resolved, That all the Indians in the United States should be colonized in the Indian Territory," was argued on the affirmative by Messrs. Hammerli and Jeffries, and on the negative by E. H. Perry and A. H. Greely. The judges decided unanimously in favor of the negative. After a five-minute recess, a well-prepared essay was presented by G. V. Johnson; declamations were delivered by A. Walters, A. F. Chase and N. E. Lewis; the old song, entitled "Don't Leave the Farm, Boys," was sung by Messrs. Wyatt, O'Harro, Ellis and Greely. The names of Messrs. Rice and Weaver were presented for membership. General business of the Society and extemporaneous speaking occupied the time till adjournment.

C. A. C.

SOCIETY HALL, April 3d, 1886.

The Webster Society came to order with President Robertson in the chair. Roll-call. Prayer by I. R. Miller. The following officers for the coming term were inaugurated: President, C. M. Breese; Vice-President, F. H. Avery; Recording Secretary, W. J. Burtis; Corresponding Secretary, John Harrison; Treasurer, W. J. McLaughlin; Critic, D. G. Robertson; Marshal, E. H. Snyder. President Breese and the Secretary then took their places, and in response to the call "Valedictory," Ex-President Robertson bid farewell to his term of office. The President followed with an inaugural. Mr. D. R. Summerville was elected a member of the Society and initiated. Debate, question, "Resolved, That President Cleveland was justifiable in withholding papers from the Senate," was discussed on the affirmative by J. W. Randall and J. B. Brown; on the negative by F. Shaw and P. S. Creager. The judges decided two to one in favor of the negative. M. H. Meyer presented an essay; H. T. Burtis delivered a declamation, and W. J. Burtis read a selection. The chairman of the Board of Directors having withdrawn from the Society, F. L. Parker was elected to fill the vacancy. Discussions were presented by D. E. Bundy and D. G. Robertson.

W. J. B.

Entering College

Applicants for admission at the beginning of the year, in September, must be at least fourteen years of age, and able to pass a satisfactory examination in reading, writing, arithmetic including percentage and interest, geography and elements of English grammar. Those applying later in the term must show sufficient advancement to enter the classes already in progress. Every effort should be made to begin with the first of the term, in order to advance with the class from the first.

Applicants of mature age who, for lack of advantages, are unable to pass the full examination may be received on special conditions.

Applicants for advanced standing in all the previous studies of the class to be entered; but, if they have pursued such studies in other institutions of similar rank, they may receive credit for their standing in those institutions upon presenting a certificate from the proper officer, showing that their course has been equivalent to that given here.

## Board and Rooms.

No provision for rooms and board is made at the College. The students all find homes in families or in family boarding-houses, at rates varying from \$3.00 to \$4.00 a week for board with furnished room. Lists of boarding-places, with prices and accommodations, can always be had at the President's office, and students are required to notify the President of their rooms when selected.

Lists of rooms for rent without board may also be had by those who wish to board themselves. Directions and advice are gladly given by any of the officers.

## Labor.

Every encouragement is given to habits of daily manual labor during the College course. Only the one hour of daily practice in the industrial departments is required; but students are encouraged to make use of other opportunities for adding to their ability and means.

The College employs students, when possible, on the farm and in the gardens, shops and offices, paying wages varying in rate with accomplishment from eight to ten cents an hour.

All labor at the College is under the direction of the Superintendents of the departments, and offers opportunity for increasing skill and efficiency. In regular weekly statements, the students are required to observe business forms and principles, showing from their daily account when and where the work was performed. A few students who have shown especial efficiency are employed during the summer vacation.

The shops and offices are open afternoon and Saturdays for the accommodation of skilled students in work for their own advantage. Everywhere the student who works wins respect; and it is a matter of pride to earn one's way as far as possible.

## MANHATTAN CARDS.

### Manhattan Hotels.

Cottage Hotel, \$1.00 per day.

Commercial House, \$2.00 per day.

### George Firestone.

Livery, Feed and Stable. East end of Poyntz Avenue.

### Higinbotham, Stingley & Huntress.

Merchants, proprietors Blue Valley Mills Manhattan, Kansas.

### Burgoyne's

Photograph Gallery. Established, 1859. Opposite Purcell's Bank.

### Clothing.

Wm. Knostman, Ready-made Clothing, Hats, Caps, and Gents Furnishing Goods. Opposite postoffice.

### Fox's Book Store.

COLLEGE TEXT-BOOKS, School Stationery, Pencils, Ink, Scratch-books, etc., etc. Manhattan, Kansas.

### Manhattan Clothing House.

Best goods and best prices. Boys, come and see us, opposite Purcell's.

LEMMON & KOLLER.

### Barber Shop and Bath Rooms.

In basement room opposite Purcell's. This is the place to get a good easy shave, a first-class hair cut, and a good, clean bath. Satisfaction guaranteed. Don't forget the place, but give me a call and be convinced.

P. C. HOSTRUP, Proprietor

### Allen Bros.

Opposite the Postoffice, keep a full line of Groceries, Flour, Fruits, Candies, Nuts, etc. Their goods are fresh and first-class, and prices are low and Goods delivered free in any part of the city and on College Hill. We invite all to call, and we will endeavor to give satisfaction.

ALLEN BROS.

### Manhattan Bank.

E. B. Purcell, banker. J. W. Webb, cashier. A general banking business transacted. Bills of Exchange issued on all principal cities and towns of Europe. All collections have personal, faithful and prompt attention of our attorneys. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

### B. Purcell,

Corner of Poyntz Avenue and Second St., has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, &c., &c., &c. Goods delivered in all parts of the city, and at the College, free of charge.

### Kansas Educational Notes.

PROF. J. D. WALTERS.

Wichita has been selected as the location of the new college to be under the control of the Christian church.

Supt. Roach has employed Prof. S. W. Winans to conduct the August institute, at \$150, and Miss Viola V. Price, of Emporia, at \$100.—*Concordia Press*.

Rawlins county is pretty well supplied with school districts. Last year there were 17 districts and 407 scholars. Today there are 31 districts and 1300 scholars. Six districts have school this spring.—*Rawlins County Democrat*.

A postal card received from Prof. J. W. Quay, County Superintendent of Marshall county, announces that "there will be an Educational Convention held April 23d and 24th, and a teachers' examination held April 24th, both at Blue Rapids." Parties interested will "take due notice and govern themselves accordingly."

The school boards of the various school districts in the county shall enlist the interest of parents and children in the work of beautifying the school grounds. Plant shade trees. They are easily procured, easily planted, and add immensely to the comfort and beauty of the school grounds. Nothing can be much more unsightly than the bare surroundings of many of our school-houses.—*Minneapolis Messenger*.

The public school library has recently been increased by the purchase of some sixty volumes of standard literature, including Dickens's complete works in fifteen volumes, Irving's in ten, and Macaulay's Essays in three, besides other well-known works of biography, travel and history. The library receives the benefit of fees paid by outside pupils for tuition, and the scholars by this evening's entertainment hope to considerably increase the fund at their disposal.—*Wellington Monitor*.

Our school board seems to be determined to make the city school of this city excel any other in the State. That is surely the right spirit, and we hope that the board and teachers they employ may be encouraged by the patrons of the school to push on and up. The latest feature has been the introduction of the study of music. A professor of music has been employed for a month, as an experiment, and we sincerely hope that one month's experiment will induce the board to adopt this branch permanently. If it were put to a vote among the patrons of the schools, we doubt whether there would be one dissenting vote.—*Wellington Standard*.

The Severy *Liberal* tells of a public lecturer who tried to run in a "sandy" on the principal of their schools. "He came in, introduced himself, and asked the privilege of announcing his lecture to the pupils, which the principal politely allowed him to do. But the stranger, on getting the floor, without being invited, proposed to stop the regular exercises and assume charge of the school himself, and give them a "drill." Right then the principal stepped up and told him to "cease firing," as his services were not wanted; that no stranger could come into that building, and, uninvited, take control of any department. So the little episode ended right there. We allowed ourself to become a laughing stock two years ago by a so-called "Professor Washburn," who represented himself as principal of the Leavenworth schools. He played the same game. He had the scholars prancing around, filing right and left, and keeping step in soldier style; making this one and that one sit down, etc.; and before he left the room he wanted to borrow \$2 to get out of the town with."

Prof. G. W. Hoss, of Baker University, sends us the following circular letter: "I will hold an Institute of Elocution and Oratory in Baker University, opening on the 2d and closing on the 26th of August next. In each branch will be given two lessons per day including Saturday—44 lessons each, 88 in all. Elocution will have two fields of work, one *vocalization*, or voice culture, developing compass, force, flexibility, and sweetness; the other, *delivery*, developing action, attitude, facial expression, self-control, with the many other qualities that give grace and impressiveness in speaking. In oratory, two exercises each day, one a lecture on principals of public speaking, including the laws of imagination and sen-

sibilities, showing their relation to the reasoning faculty and their functions in both the preparation and delivery of the discourse. One exercise each day in the analysis of the address or sermon, and drill in delivery. In this work the aim will be to classify the different steps in the preparation of the address, also to point out the different styles of oratory and the different modes of delivery, noting and correcting mannerisms and other elements of weakness and hindrance. Tuition: \$5.00 for one of the courses, \$8 for both. In case there be fifteen students or above in either course, rates will be reduced to \$4 or to \$7." Fuller information may be obtained by addressing the Professor at Baldwin, Kansas.

THERE are eight young men chosen from the junior class at Yale College to speak at the public exhibition, the speakers being selected for scholarship. The New York *Herald* tells us that among this select number is one who comes from a country which Senator Mitchell, of Oregon, recently described in the Capitol at Washington as a "stagnant and sickening cesspool of pagan filth," all of whose natives who stray to the United States deserve to be "immolated as destroyers of American peace and happiness." The name of this "pagan" who has "destroyed the peace and happiness" of all but seven of his class-mates is Yan Phou Lee, and the Yale catalogue specifies his residence as at Fragrant Hills, China."—*Atchison Champion*.

#### Means of Illustration.

Two farms of 171 and 100 acres, for the most part surrounded by durable stone walls, subdivided into fields of variable size to suit the system of management.

A large variety of standard experimental grains in cultivation in fields and experimental plats.

A well-planned barn for grain, hay, horses and cattle; and a piggery of six pens, with separate yards.

Shorthorn, Aberdeen-Angus, Galloway and Jersey cattle; Berkshire, Poland-China, Jersey Red and Essex swine.

Farm implements of improved patterns.

Collections of grains, grasses and forage plants.

Orchards, containing 275 varieties of apples, 80 of peaches, 50 of pears, 16 of plums, 20 of cherries and 10 of apricots.

Small fruit garden, with 200 varieties of small fruits, including blackberries, raspberries, gooseberries, currants and strawberries; and vineyard with 100 varieties of grapes.

Forest plantation of twelve acres, containing twenty varieties of from ten to fifteen years' growth.

Ornamental grounds, set with a variety of evergreen and deciduous trees. Sample rows, containing 150 varieties of ornamental and useful shrubs and trees, labeled.

Vegetable garden, with hot-beds and cold-frames and experimental beds. Practice rows for students' budding, grafting, cultivating and pruning.

A well-planned and furnished greenhouse of three rooms, stocked with a collection of native and exotic plants.

Chemical laboratory, with eight rooms, fitted with tables and apparatus for a class of eighty students; also, physical apparatus, meteorological instruments, and apparatus for advanced chemical work and assaying.

Models, plaster casts and patterns for drawing, and charts for illustration.

Botanical museum, containing a good herbarium, fairly representing the flora of the United States; a collection of native and foreign woods, seeds, nuts, dry fruits; a collection of abnormal wood growths.

Mineral and geological cabinets, including collections of Professor Mudge; a representative collection of the ores of Colorado, New Mexico and Arizona.

Zoological museum, containing a typical collection of birds and mammals, mounted; a cabinet of bird skins, eggs and nests; a good collection of reptiles and fishes in alcohol; a large series of land, fresh water and marine shells; a good representation of the insects of this locality, and a collection of invertebrates in alcohol.

Mathematical instruments,—compasses, transits, levels, chains, for field work.

Carpenter shop, with separate benches and tools for thirty students in each class, besides lathes, mortising machine, and general chest of tools for fine work.

Shop for iron work, with forges, vises, drill, etc.

Printing office, with twenty-five pairs of cases, a good assortment of body and job type, a Country Babcock press, a quarto jobber, and a paper cutter.

Telegraph office, with six miles of line, connecting thirty-two branch offices, and as many instruments, and a Remington type-writer.

Sewing rooms, with five machines, models and patterns.

Kitchen laboratory, with ranges, cooking utensils, dining-room furnishings, creamery and dairy furniture.

Music rooms, with four pianos, three organs, and other instruments.

A library, carefully selected and catalogued, containing 6,000 volumes. A reading room is maintained in connection with the Library, where may be found on file forty-five of the leading literary, scientific, technical and agricultural periodicals, and several hundred newspapers, including the principal daily and county papers from all parts of the State.

Armory, containing one hundred stand of arms (breech-loading cadet rifles, calibre .45) with accoutrements.

#### Objects.

This College now accomplishes the objects of its endowment in several ways.

First, it gives a substantial education to men and women. Such general information and discipline of mind and character as help to make intelligent and useful citizens are offered in all departments, while the students are kept in sympathy with the callings of the people.

Second, it teaches the sciences applied to the various industries of farm, shop and home. Chemistry, botany, entomology, zoölogy and mechanics are made prominent means of education to quick observation and accurate judgment. Careful study of the minerals, plants and animals themselves illustrates and fixes the daily lesson. At the same time, lessons in agriculture and horticulture show the application of science; and both are enforced by actual experiment.

Third, it trains in the elements of the arts themselves, and imparts such skill as to make the hands ready instruments of thoughtful brains. The drill of the shops, gardens, farm and household departments is made a part of a general education to usefulness, and insures a means of living to all who make good use of it. At the same time, it preserves habits of industry and manual exertion, and cultivates a taste for rural and domestic pursuits.

Fourth, it strives to increase our experimental knowledge of agriculture and horticulture. So far as means and circumstances permit, experiments are undertaken with a view to more definite results than ordinary experience can give. By this method the students themselves are trained to a more accurate observation and judgment in these practical tests of principles in farming.

Fifth, it seeks to disseminate such practical truths as have stood the test of scientific inquiry. For this purpose it publishes the INDUSTRIALIST; and its officers share in debates and consultations of farmers and horticulturists throughout the State. Each winter a series of six Farmers' Institutes is held in as many different counties of the State. In these the Faculty share with the people in lectures, essays and discussions upon topics of most interest to farmers.

#### Industrial Arts.

*Industrial Arts.*—The training in these departments is designed to be systematic and complete in each, so that any student, following a single line diligently through a whole four-years' course, gains the essentials of a trade and a reasonable degree of skill. Those who wish only a general acquaintance with the arts can take shorter courses in several of them; but all are to select with definite purpose. In the established course, young men are required to take the regular term in the carpenter shop and on the farm and gardens whatever the industrial chosen. Young women are required to take one term in the kitchen laboratory and one in the dairy, though other industrials may occupy their course.

*Dairying.*—During the spring term, daily instruction and practice in the different branches of dairying is given the ladies of the second year by the Instructor in Household Economy. A dairy, well equipped in modern appliances for the manufacture of butter and cheese, is connected with the Department of Household Economy. Here the regular dairy work is supplemented by a short course of lectures intended to explain the best practices in the art of butter and cheese making, and to give the reason therefor. The following topics cover, in the main, the instruction given the class: Influence affecting the quality and quantity of milk; butter making; the household and factory system of cheese making. Creameries: "deep" and "shallow" setting system; packing and preserving butter.

*Agriculture and Horticulture* are required of young men as industrials during one term of the second year and one term of the third year. In these, practice is made to illustrate and emphasize the teaching, and covers essentially the same ground.

*Carpentry, etc.*—On entering the shops, all take the same first lessons in sawing, planing

and dressing lumber, making mortises, tenons and joints, and in general use and care of tools. Later, one who chooses a trade is provided with work directly in the line chosen; while the farmer's course provides for general training in a great variety of operations, rather for ingenuity than skill. In the full course of a carpenter, special instructions are given in the whole range of work, from framing to stain building. Carpentry is required of young men during one term of the first year.

In iron work, instruction is given in ordinary work,—forging, filing, tempering, etc.

*Printing.*—Two courses are pursued in this art. In one the student is taught the implements or tools employed in typography, and how to use them; composition; imposition; correcting proof; technical terms; presses and their workings; and the general duties of a first-class workman. Everyone is encouraged in studying the rise and progress of printing and related arts. Habits of accuracy and thoroughness are required in order to advancement. The second course of lessons, alternating with those of the first, embraces instruction in spelling, capitalization, syllabication, punctuation, proof-reading, preparation and criticism of essays, and such other work as will make the student accurate and expert in language. Wilson's Punctuation is the text-book; but much of the instruction is oral,—such as grows out of the every-day experience of the office.

Admirable drill is furnished by the INDUSTRIALIST to all, but especially to those who take the full course. The printing which the departments of the College require gives to the advanced student a fair knowledge of the principles and practice of job work.

*Telegraphy.*—The course of training involves for beginners the characters that compose the alphabet, and combinations of these characters into words and sentences—attention being paid to spelling and to short and precise expressions in messages,—abbreviations, signals, forms of messages, train orders, reports etc. To the more advanced is given regular line business, as press reports, messages, cipher messages, and orders in all forms used by prominent telegraph companies, together with the necessary book-keeping, upon exact copies of the blanks in actual use, thus giving the students an understanding of the work of an operator. A portion of the time is devoted to instruction in the management of lines, batteries, instruments, etc. The elementary principles of electricity, magnetism and electro-magnetism, involved in telegraphy, are taught and illustrated by experiments. The more recent inventions related to the art are discussed and explained. Pope's Handbook of the Telegraph is used as a text-book.

*Sewing.*—Young ladies are taught in all ordinary forms of sewing with needle and machine, and in cutting, fitting and trimming dresses and other garments. A straight-line system of cutting and fitting is taught, and systems are furnished to students at wholesale rates. They may furnish materials, and work for their own advantage during the hour of practice, under the direction of the Superintendent.

*Instrumental Music.*—Provision is made for the teaching of music upon instruments of all sorts. A full course upon the organ or piano extends over four years, including harmony and composition; but students may take lessons for a single term if they choose. The College furnishes the instruments for daily practice, but the instruction is paid for at usual rates.

#### General Course of Study.

Each student is expected to take three studies besides one hour's practice in an industrial art: and variation from this rule can be only with consent of the Faculty.

Parallel courses are offered to both sexes with such differences as their necessities seem to call for. The following gives the general scope of the two; but fuller explanations are found in the annual catalogue.

FIRST YEAR.	SECOND YEAR.	THIRD YEAR.	FOURTH YEAR.	FALL TERM.	Arithmetic.
				WINTER TERM.	English Analysis.
				SPRING TERM.	Geometrical Drawing.
					Book-keeping, Drawing.
				FALL TERM.	English Structure.
					United States History.
				WINTER TERM.	Algebra.
					English Composition.
				SPRING TERM.	Botany.
					Algebra completed.
				FALL TERM.	Elementary Chemistry.
					Horticulture.
				WINTER TERM.	14 Lectures in Military Science.
					Geometry.
				SPRING TERM.	Practical Agriculture or Household Economy.
					Organic Chem. and Mineralogy.
				FALL TERM.	12 Lectures in Military Science.
					Geometry completed, 5 weeks.
				WINTER TERM.	Drawing, 5 weeks.
					Entomology.
				SPRING TERM.	Analytical Chemistry.
					Trigonometry and Surveying.
				FALL TERM.	Physiology.
					General History.
				WINTER TERM.	Mechanics.

# THE INDUSTRIALIST.

PUBLISHED BY THE PRINTING DEPARTMENT.

KANSAS STATE AGRICULTURAL COLLEGE.

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MANHATTAN, KANSAS, SATURDAY, APRIL 17, 1886.

No. 35.

## KANSAS STATE AGRICULTURAL COLLEGE.

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### COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.  
College Lands and all business connected with their sale are in charge of the Land Agent.

Bills against the College should be presented monthly, and, when audited, are paid from the office of the Treasurer, in Manhattan.

All Payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka.

The INDUSTRIALIST may be addressed through Prof. E. M. Shelton, Managing Editor. Subscriptions are received by Supt. Geo. F. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Kellerman, chairman of the committee on Museums.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding places, etc.,—may be obtained at the office of the President or by letter.

### The Kansas Wheat Crop for 1886.

TOPEKA, KAN., April 6th.—Secretary Sims, of the State Board of Agriculture, has prepared the following summary of his crop report for three months ending March 31st: The light yield and unsatisfactory price of winter wheat for 1885, together with unfavorable conditions of seeding time, caused a reduction in the area sown last fall as compared with 1884 of about 16 per cent. The greater part of this loss is found to be in heavy wheat-growing districts in the central portion of the State, known as "the wheat belt." The counties of Dickinson, Saline, McPherson, Marion, Sedgwick and Sumner,—six of the largest wheat-producing counties of the State,—show a loss, as compared with the area sown in 1884, of 140,000 acres, while all the other counties lying within the belt, with the exception of Russell, Ellsworth, Rice and Ottawa, have lost heavily. The eastern third of the State, less noted for wheat culture, has also reduced its area materially, but the loss, as compared with that shown by the report from the central belt, is not very important. In the west increased areas have been sown. Reports from the section where the acreage has been and still remains small show the area sown last fall to be largely in excess of any former period. As a rule, farmers delayed seeding last fall much beyond the usual period. The seed germinated well, however, but late; and while the plant grew well in November and December, it was too feeble at the beginning of winter to withstand the usual cold weather of January and February, and the early-sown fields in some of the large wheat-growing districts have been seriously injured. A summary of the reports from 480 correspondents, representing every organized county, and some unorganized, showing that the condition of the crop April 1, clearly indicates that at least 40 per cent of the wheat sown in Kansas last fall has been killed. The loss in the central part of the State, where the greater part of the wheat is grown, is very heavy, ranging in different counties from 30 to 80 per cent; in the eastern counties 20 to 30 per cent; and in the west from 5 to 10 per cent. The reports also show the condition of living plants to be 20 per cent below the vitality and growth of former years. At the period under consideration, April 1, the summary of loss in the area shown, as compared with 1884, is 16 per cent winter killed, and death from other causes 40 per cent. The area from which a product may be expected, as compared with the vitality and growth of average years at this date, is 80 per cent.

### Bacillus of Consumption.

Dr. Cantani, of Naples, having in mind the fact that the bacillus of consumption is destroyed when other bacteria are grown in same soil, has proposed to eradicate consumption by introducing into the system other bacilli, which are injurious only to the germs of the disease. If an organ of the body be attacked by a bacillus dangerous to human life, he would introduce another, harmless to man but fatal to the destructive bacillus. In the case of a consumptive patient, Dr. Cantani introduced a harmless organism, known as the *Bacterium termo*, and found that the *Bacillus tuberculosis* gradually disappeared from the patient's expectorations. The widespread desolation wrought by consumption is more than sufficient to urge the strongest effort on the part of the medical fraternity to discover a successful treatment. It may be possible that this suggestion will bear fruits of the greatest importance. We hope, at least, that it will receive careful investigation.—*Scientific American.*

A GREAT reform was initiated in Congress last week so quietly that it has gone unnoticed by the country. From time immemorial it has been the custom, whenever a Senator or Representative died, for each branch to set aside a day for "eulogies of the deceased," and the day was consequently lost for purposes of public business. A few weeks ago, Representative Rankin, of Wisconsin, died, and when the proper time had elapsed, his friends took steps for the delivery of the conventional oratory. With rare good sense, however, they proposed that a special evening session of the House should be set apart for this purpose, and last Thursday evening was thus employed, the members having previously done a good day's work at the business of legislation. It will, of course, be impossible hereafter to deliver eulogies at any other time than in the evening session, since the assignment of a day for the purpose in the case of any other member who may die would be in the nature of an insult to the memory of Mr. Rankin. A long-needed reform is accomplished.—*Evening Post.*

WANT to plow? Well, go ahead. Can't find the plow, eh? About face; go to that ten-acre lot at the farther end of the farm, and you will find your plow just where you left it nearly six months ago—rusty, weather-beaten and almost worthless. Well, a new one will cost only \$15.00, and that is much cheaper than to carry the implements to the tool house, well cleaned, after using. Of course it is, and that's why you are so well off (?) in this world's goods.—*Our Country Home.*

IF we are to have another contest in the near future of our national existence, I predict that the dividing line will not be Mason and Dixon's, but it will be between patriotism and intelligence on the one side, and superstition, ambition and ignorance on the other. Let us all labor for the security of free thought, free speech, free press, pure morals, and unfettered religious sentiments, and equal rights and privileges for all men, irrespective of nationality, color or religion.—*General Grant.*

WALK down any business street, and ask every business man you meet if his wealth was inherited or earned, and the answer will give you the proof of our statement. Socialism may fit Europe or Asia, but in America wealth is a football, kicked back and forth by sturdy endeavor. Waving red flags and rending the atmosphere with cries or curses, will amass no dollars. There is no upper or lower class here. Run your eyes over the list of Presidents for the last twenty years, and you will see that we need no socialism here. Every one of them sprang from the lowest ranks of toil. Not one of them split his throat in mobs or waved red flags. They all knew bet-

ter than that. They hung their coats on a fence stake and went to work.—*Albany Journal.*

### Our Exchanges.

When twelve or fourteen-year-old boys acquire the habit of chewing tobacco, they certainly ought to learn how to keep the juice from drooling out the corners of their mouths.—*El Dorado Republican.*

It is all right for a young man intending matrimony to find out whether the young girl can cook; but it is still more important for the girl to find out whether the man is capable, by education and good habits, to provide supplies for the kitchen.—*Leavenworth Times.*

First the Indian and the scalping knife, then the cow-boy and the lariat, and now the settler and the plow. First the buffalo and antelope, then the Texas steer and broncho, and now the Jersey cow and Clydesdale horse. First the dug-out and the ox wagon, now the fine residence and elegant carriage. So we go.—*Hanover Democrat.*

Jim Gardener had a calf to die under peculiar circumstances on Tuesday. It was well, apparently, but suddenly began to jump, bawl and stagger around. George Priest cut one ear nearly off and split its tail to bleed it, hoping to thus help it, but with no avail. It is believed the trouble was hydrocephalus.—*Oskaloosa Sickles.*

Mr. J. W. Howell writes to the *Kansas Farmer*: "It is not what a man makes that makes him rich, but it is what he saves; and you will never get rich handling cattle in the winter time behind three wires, on prairie hay and ice water. Ice water is 'mighty' at times, but ice water and cattle do not go together worth a cent."

H. A. Matthews has seeded ninety-five acres to clover this spring, which will make for him two hundred and seventy-five acres in all seeded down to tame grass. Peter Stahl and Thos. Cuddeback are seeding about sixty acres each this spring, and many others are seeding down their lands. The farmers are beginning to see money in grass.—*Spring Hill New Era.*

The committee having charge of the soliciting of subscriptions to the State Fair fund report today that they now only lack \$435 of the amount which they started out to raise. As soon as they are assured of that amount, the breaking of the ground for the track will commence, as a part of the money has been promised. We confidently expect work to commence inside of ten days.

The most independent creature on earth is a Kansas farmer—a man who has 160 acres of land, out of debt, with a little good stock, good health, a good wife, and sense enough to keep out of debt. The most dependent being in the world is a Kansas farmer who is mortgaged, whose stock is of scrub order, who is too lazy to work, and who sits on a dry goods box talking politics and spitting at a crack, when he ought to be at home attending to his business.—*Sedan Times-Journal.*

At the beginning of last year Mrs. Augustus Hemenway asked for a room in a Boston school-house, which was granted, and this she fitted up at her own expense as a cooking school. Two teachers were engaged to help her,—one an English woman from the famous London school, and the other a normal graduate from the Boston Cooking School. During the year, five grammar schools have each sent thirty pupils for weekly lessons, and with the result that when the committeemen were asked to examine them in this new study, they were so well pleased that they have asked of the city \$6000 to further carry out this project and introduce the study of cooking into the public schools next year.—*Atchison Champion.*

## THE INDUSTRIALIST.

SATURDAY, APRIL 17, 1886.

EDITED BY THE FACULTY.  
E. M. SHELTON, MANAGING EDITOR.

### The Air Telegraph.

The newest application of electrical energy consists in sending messages by telegraph to and from railway trains regardless of whether they are running or standing still. The system — which, not unexpectedly, has the name of Thomas A. Edison associated with it — depends upon the transmission of electrical impulses over considerable distances through the air. The apparatus on the train consists of a battery and its circuit, an induction coil, a telegraph key, a vibrating reed, an electro-magnet, a telephone and a switch, and occupies about as much space as a car seat. The induction coil is connected from one terminal with the metallic roof of the car and from the other with the ground through the axle, wheels, etc. By means of the electro-magnet and current-breaker, the reed is made to vibrate 500 or 600 times per second and produces a musical sound not varying much in pitch from one octave above middle C. These vibrations make and break the current through the primary of the induction coil, and thus is produced a series of impulses in the secondary coil, from which they are conducted to the roof of the car from one terminal and to the ground from the other. The roof then becomes electrified with the high-tension electricity of the secondary coil 500 or 600 times per second. Each of these 500 or 600 impulses produces an impulse in every conductor within the sphere of its influence. This influence has been found to be appreciable for a distance of 580 feet, and to be sufficiently great for use through as great a distance as that which usually separates the ordinary telegraph wires from the top of the car. Having reached the wires, these impulses at once traverse their entire length. A telephone attached to these wires at any point converts these electrical impulses into sound, of 500 or 600 vibrations per second, reproducing the tone of the vibrating reed about one octave above middle C. Again, when such impulses pass over the telegraph wires, they induce like impulses in all conductors near them. These may be collected from car roofs, and converted into sound through the telephone.

It has been observed that the vibrating reed is actuated by an electro-magnet: this magnet owes its power to the current from the battery. Now this current may be broken by opening its circuit with the telegraph key and allowed to pass at intervals corresponding to the dots and dashes of the Morse alphabet. The action of the magnet, and hence of the reed, is broken just as the current is broken. The electrical impulses of the secondary coil and of the entire system are thus broken. The sound therefore occurs in the telephone at intervals, as on a common sounder, and may be read by any operator provided with the apparatus of the system, and this whether he be at a station or on a stationary or on a moving train.

These electrical impulses do not at all effect the ordinary telegraph instruments; and it is said that messages sent by the ordinary system cannot be heard on these instruments; so that the two systems may be carried on over the same wires at the same time without the least

interference, the wires of each system being in entire ignorance of what is going on in the other system. Mr. Edison states that it is possible for a rival company to erect its offices near the wires of any other line and do business over these wires.

It is claimed that all the practical difficulties have been overcome, and that the system will be rapidly put into use on all the principal railroads.—*Prof. Cowgill.*

### A Model Neighborhood.

A model neighborhood has been found at last. It is one where the residents obey the Scriptural injunctions, "Love thy neighbor as thyself" and "Do unto others as ye would that they should do unto you."

We judge the progress of a State by the number and character of the schools it maintains, and so may we judge a neighborhood by the number of earnest supporters its school has. In the community referred to, the people all point with pride to "our school-house, where our children are taught by a man in whom we have the utmost confidence." Why do they talk thus? This is why: The people select for members of the school board men who are competent to properly fill the office; they do not choose men whom they think will use their influence to have as short a term of school as will permit them to draw State money. When this board desire to employ a teacher, they do not offer the school at auction. The merits of a teacher are considered, rather than the salary he may ask. The standing an applicant received at his last examination is not alone considered, but they look into his character in general:—will his influence be of the right kind? will he be "boss" in the school-room and an object of dislike and distrust out of it, or will he be a teacher, in the fullest sense of the word, all the time? will his deportment be worthy of emulation by all the people in the district? They visit the school occasionally, and greatly encourage both teacher and pupils by their presence. This board, knowing that they are selected by the people, endeavor to carry out the will of the people in all school matters. This is the right spirit — and, let me add, no district has the exclusive right to it. If every school officer in Kansas would look at his work in this light, the efficiency of our public schools would be greatly promoted.

There is another thing in this neighborhood worthy of note, which is probably the natural outgrowth of this earnest support of schools, and that is the general desire to be well-read citizens. A club which has been organized for years, meets once a week, except during that part of the year when farmers are busiest. At the meetings of this club, the programme consists principally of reading the standard works of our literature, and discussing and criticising the same. One book or author is completed before taking up another. Music, of course, forms an essential part of the programme, and declamations by children are frequent.

Now, it is possible for every school district in Kansas to conduct its affairs in this way. The general tone of such a district is greatly improved. Although our public schools are an institution of which we may well feel proud, there is just cause for complaint that they do not effect all the good that they might. This is not the fault of the Government or the State or the county, but the district. Let the residents of a district work to-

gether for their best welfare, and our "model neighborhood" will not be an isolated case very long.—*Supt. Thompson.*

### Young Men as City Loafers.

It has been a query for a long time why so many young men of this State find pleasure in loafing about the cities, doing no good for themselves or anybody else. It is not a difficult matter for any of us to call to mind a dozen or more such young people. They are intelligent, seemingly industrious, and often well educated; but they show by their actions that they have an aversion for permanent employment. Instead of endeavoring to earn and save enough money to go into some kind of business or to buy a farm, they refuse to start at the bottom of the ladder that would lead them to success in business, and avoid anything that points in the direction of the farm. One of this class may have been seen driving a delivery wagon yesterday, clerking in a store today and tomorrow may be billing the town for a circus. He is ever on the watch for such jobs. His services are in demand when the regular employee is off duty, on account of sickness or for a vacation, or something of the kind. He earns enough to dress tolerably well, and sometimes pays his board. The ant is more industrious than he, and it has more thought for the future.

In Kansas, where the country is being developed so rapidly, there is an opportunity offered to young men that will probably never come again. Land is cheap; it doesn't require a large amount of capital to open up a Kansas farm, and the ability to do it is not lacking; and, too, there are hundreds of farmers who would be glad to give young men a chance to do something for themselves on the farm, if they would only show a willingness to take hold of farm work in earnest. There should be no trifling with farm work. Farmers, like business men, cannot afford to place confidence in one who is not trustworthy. Men with tenacity of purpose are needed on the farms, as well as elsewhere. The fact that quite a number of boys of from ten to seventeen years of age, from the Orphans' Home of New York, were disposed of to the farmers of one of our western counties a few days ago, and the additional fact that the number of applicants exceeded the number of boys by more than half, go to show that the thousands of half-tilled farms of Kansas are needing the young men who idle their time away in the cities.

Young men, why did you leave the farm for no particular pursuit? Do you find anything in your relations with city life that is as pleasant and elevating as a busy farm life? Idle city life has many alluring vices, and these may ruin all the future for you. Your mother who once sang "Don't leave the farm boys," may now be singing "Oh, where is my boy to-night?"—*Supt. Thompson.*

### Objects.

This College now accomplishes the objects of its endowment in several ways.

First, it gives a substantial education to men and women. Such general information and discipline of mind and character as help to make intelligent and useful citizens are offered in all departments, while the students are kept in sympathy with the callings of the people.

Second, it teaches the sciences applied to the various industries of farm, shop and home. Chemistry, botany, entomology, zoölogy and mechanics are made prominent means of education to quick observation and accurate judgment. Careful study of the minerals, plants and animals themselves illustrates

and fixes the daily lesson. At the same time, lessons in agriculture and horticulture show the application of science; and both are enforced by actual experiment.

Third, it trains in the elements of the arts themselves, and imparts such skill as to make the hands ready instruments of thoughtful brains. The drill of the shops, gardens, farm and household departments is made a part of a general education to usefulness, and insures a means of living to all who make good use of it. At the same time, it preserves habits of industry and manual exertion, and cultivates a taste for rural and domestic pursuits.

Fourth, it strives to increase our experimental knowledge of agriculture and horticulture. So far as means and circumstances permit, experiments are undertaken with a view to more definite results than ordinary experience can give. By this method the students themselves are trained to a more accurate observation and judgment in these practical tests of principles in farming.

Fifth, it seeks to disseminate such practical truths as have stood the test of scientific inquiry. For this purpose it publishes the *INDUSTRIALIST*; and its officers share in debates and consultations of farmers and horticulturists throughout the State. Each winter a series of six Farmers' Institutes is held in as many different counties of the State. In these the Faculty share with the people in lectures, essays and discussions upon topics of most interest to farmers.

### Expenses.

Tuition is free, and no general fee for incidental or contingent expenses is charged. In a few special departments of instruction, the following payments are made in advance to the Secretary:—

In analytical chemistry, the students pay \$3 a term for the chemicals and apparatus used in their laboratory practice and analysis.

In the printing office, young men, in their first year, pay \$3 a term for office expenses. Advanced students have the use of the office for the work performed during the industrial hours.

In telegraphy young men pay \$3 a term for office expenses.

Young women are furnished both printing and telegraphy free of expense, these two offices, with the Sewing and Cooking Departments, being provided especially for their industrial training.

Lessons in instrumental music, two a week, are from \$10 to \$14 per term, according to its length; one a week, \$6 to \$8.40. One half is to be paid to the instructor in charge with the first lesson, the other half at the middle of the term.

The cost of text-books at the book-store is, for the first year about \$4 a term; for the second year, \$2.75; for the third year, \$7.50; and for the fourth year, \$5.50.

Board and washing are not furnished by the College. Board, with furnished room, can be procured in private families at from \$2.75 to \$4 per week. Some students board themselves at even less cost, and rooms for the purpose can be obtained at a rent of from \$1 to \$2.50 a month. Washing costs from \$0.50 to \$1 a dozen pieces.

Ordinary expenditures, aside from clothing and traveling expenses, range from \$100 to \$200 a year.

## FOURTH ANNUAL

# Shorthorn Sale,

At Fair Grounds

MANHATTAN, RILEY CO., KANSAS.



IMP. DOUBLE GLOSTER

TUESDAY, MAY 4th, 1886.

At 10 O'clock A. M. Sharp.

LUNCH AT 12 M.

45 WELL BRED 45

## RECORDED SHORTHORNS

FROM THE BLUE VALLEY HERD.

TERMS:—Cash, or six months on approved notes, interest at ten per cent per annum.

CATALOGUES NOW READY.

WM. P. HIGINBOTHAM.

S. A. Sawyer, Auctioneer.

# THE INDUSTRIALIST.

SATURDAY, APRIL 17, 1886.

## CALENDAR.

1885-86.

FALL TERM.—Sept. 10th to Dec. 18th.  
WINTER TERM.—Jan. 5th to Mar. 28th.  
SPRING TERM.—Mar. 29th to June 9th.  
June 9th, Commencement.

Persons receiving the "Industrialist" need have no fear of bills to come; for the paper always stops with the expiration of subscriptions, unless continued by favor of a friend or of the College.

## BONDS WANTED.

School District bonds issued on College blanks will bring their par value at once. Address T. P. Moore, Holton, Jackson Co., the College Loan Commissioner.

Mrs. Eva Minshall, a cousin of Mrs. Fairchild, has been visiting her friends at the College the past week, while on her way from a former home in Colorado to a new home in Chicago.

The Library is in possession of the directories of Saline and Dickinson counties, through the kindness of Warren Knaus, one of the compilers, and an alumnus of this College.

President Fairchild and the College received a call last week from a former student at the Michigan Agricultural College, Mr. W. D. Graham, who expressed delight at seeing such a College here.

The Scientific Club did not hold its regular meeting two weeks ago because there was too much snow; they failed to meet last week because there was too much rain: our scientific friends seem to be hard to please.

We have had visitors in goodly numbers this week, but none too many. Of these, we especially remember Mr. E. O. Morse, of Linn county, and Thos. Cain, of Burlingame,—because they are stockmen, we suppose.

Messrs. Avery, Breese, Burtis, Brown and Misses Cottrell, Waters and Wikander are the fortunate ones who, by a recent decision of the Faculty, are to represent the third-year class at the Undergraduates' exhibition of next Commencement.

On Tuesday morning the whole of the bottoms, separating College and town was a lake, to all intents and purposes. The wind began to blow about ten o'clock, and before night almost the entire distance might be driven without encountering a mud hole.

While mechanics and the city "laboring men" are growing hoarse in their advocacy of the "eight-hour movement," we wish to say a word in behalf of farmers and professional men, particularly college teachers, most of whom would be supremely happy if ten or even eleven-hour limitation could be put upon their day's work.

Prof. J. H. Canfield, of our State University, will lecture under the auspices of the Hamilton Society, in the College Chapel on Friday evening of next week. We have not learned what the Professor's subject is, and it doesn't matter much. Canfield is certain to make any subject interesting which he turns himself loose upon.

A furious horse, which had escaped the control of its rider, threw himself bodily upon the carriage containing Mrs. Winchip and others as they were on their way to College yesterday morning. The buggy was reduced to the condition of a very inferior article of kindling wood in a jiffy, but most wonderfully the occupants escaped with no greater injury than a few bruises.

The friends of industrial education everywhere will be glad to learn that that old standard school of agriculture and the parent of many others,—the Michigan Agricultural College—is again flourishing,—as we learn from a recent number of the *College Speculum*,—having a large attendance of students of the right sort. By the way, these agricultural colleges, generally, which "mind their own business" seem to thrive.

We are delighted at the opportunity we now have of saying something pretty and complimentary about the weather, but sha'n't say it for fear the Leavenworth *Times* man, who runs agriculture and the weather for that excellent family and news journal has a change in store for us. Several thousand miles of the greenest kind of tame grass grows for us every one of these warm days.

Mr. Whitney started for Kansas City on Thursday to receive a young imported Cruickshank bull bearing the quite unromantic and unsuggestive name "Thistle Top," which has been most thoughtfully and kindly loaned the College by his owner, Mr. Jas. I. Davidson, of whom Highland Chieftain was purchased last winter. The College is to have the use of Thistle Top during the period in which Highland Chieftain is convalescing.

The way INDUSTRIALIST locals fly about receives frequent illustration. For example, the reference to winter oats made in these columns two weeks ago, has brought requests for oats and information about them from many different directions; the latest coming from a gentleman living in Dakota, who enclosed two dollars, remarking that he had seen the item in the Beloit *Gazette*, and wanted two dollars' worth of the oats sent by express to Dakota, which he believed to be just the place for them.

Twenty out of the thirty members of the Domestic Science Club of Manhattan, gathered for their annual "social tea" at the house of the President on Thursday afternoon. As each lady contributed to the "tea," the supper was praised by all, and honestly too. As this Club had its inception at the College, and more than one third of its members are connected, directly or indirectly, with the College Faculty, the INDUSTRIALIST is glad to chronicle its thrift and prosperity as reflecting in some sense the growth of the College in the art of home culture and economy. Certainly the Club reflects credit upon its College origin as well as upon its membership.

It is a real joy to us, unadulterated and undiluted in any way, to notice all over the bottoms between the College and town and all along the streets in town, the numerous bunches and splashes of blue-grass and white clover which everywhere appear, all because that brutal, skinny, hump-backed town cow is not allowed, now-a-days, to tread and gnaw these grasses and clovers to total destruction. If a kind Providence will only supply the Manhattan city council and mayor with backbone sufficient to enable them to stand right up to the cow ordinance, in a very short time the vacant lots and all along the sides of the streets will show the handsomest kind of a sward.

Four hundred and twenty-seven students have been enrolled the present year at the Kansas Agricultural College, and new ones continue to arrive. This is a school whose friends—unlike those of some others—do not waste their time in trying to assure the public that they are ashamed of the title "Agricultural," or that they would be more proud if their institution was called a "University" or some other dude name. There is no better evidence that one of the Government-endowed State schools is in the sere and yellow leaf than to see its guardians planning to quietly hustle the agricultural idea out at the back door.—*Kansas City Live-Stock Indicator*.

## COLLEGE SOCIETIES.

ALPHA BETA.—Chartered, December 26th, 1870. Meets in the Society Hall every Friday at 2:30 P. M. Ladies admitted. New students cordially invited to attend.

MISS IDA QUINBY, President.

J. W. VANDEVENTER, Secretary.

WEBSTER.—Chartered, January, 1871. Meets in Society Hall every Saturday evening. Visitors, especially students, always welcome,

C. M. BREESE, President.

W. J. BURTIS, Secretary.

SCIENTIFIC CLUB.—Meets on first Friday evening of each month. Composed of members of the Faculty and advanced students. Devoted to the improvement of its members in general scientific knowledge, and the encouragement of original investigations.

PROF. WALTERS, President.

MRS. KEDZIE, Secretary.

HAMILTON.—Chartered January 29th, 1885. Meets every Saturday evening. Admits gentlemen only. Visitors always welcome.

N. E. LEWIS, President.

A. WALTERS, Secretary.

The Y. M. C. A. meets at 3:30 P. M. Sunday.

D. G. ROBERTSON, President.

C. A. MURPHY, Secretary.

The Y. W. C. A. meets Tuesday afternoon.

F. HENRIETTA WILLARD, President.

NELLIE COTTRELL, Secretary.

## REPORTS.

SOCIETY HALL, April 10th 1886.

The Webster Society came to order at 7:30 P. M. with President Breese in the chair. M. H. Meyer led in prayer. Debate, question, "Resolved, That educating the Indians is useless." The affirmative of the question was supported by R. Cameron and D. E. Bundy; the negative, by A. W. Murray and R. U. Waldraven. The judges gave their decision in fa-

vor of the negative. C. E. Friend read an essay on Agricultural Colleges. Select reading, "The One-Horse Shay," E. H. Snyder. G. N. Thompson presented the *Reporter*. Under the order extemporaneous speaking, the following discussions were given: The Egg-laying Monotremes, by W. McIlwain; Silver Coinage, W. S. Hoyt; Ocean Currents, A. A. Mills.

W. J. B.

## SOCIETY HALL, April 16th, 1886.

At the call to order by President Quinby, a goodly number of Alpha Betas gathered in Society Hall. The programme for the afternoon was introduced by a quartette, "Lovely Night," Tracy Wikander committee. Miss Hopper led in devotion. Mr. Patterson then favored the Society with a declamation from Shakespeare; after which came an interesting essay on "Irving" by Lora Waters. Mr. A. G. Rogers and Miss Dora Van Zile then proved, to the satisfaction of the judges at least, that "education has more influence than wealth;" while Mr. R. D. Whaley and Miss Maria Hopper argued for wealth. Mr. Brous next presented a well-gotten-up *Gleaner*. An intermission of five minutes gave opportunity for social converse. After recess, "The Bridge" was sung by Miss Ada Little. Extemporaneous speaking being passed, "business" occupied the Society mind for some time. Duties for two weeks are as follows: Music, Winnie Brown; declamation, E. J. Abell; essay, D. W. Working; debate, M. A. Carleton assisted by Marian Blachly, O. L. Utter assisted by Emma Secrest; *Gleaner*, V. V. Aiken. We gladly welcome all visitors.

Q.

## SOCIETY HALL, April 10th, 1886.

Promptly at the call of President Lewis, the Hamilton Society came to order. Roll-call showed the attendance to be small. G. W. Waters led in devotion. H. N. Rice and Mr. Weaver were elected members of the Society. Mr. Rice, being present, was initiated. "Resolved, That in a free country like the United States no set of men should be allowed to interfere with commerce as did the latest strikers," was the question discussed by G. W. Waters and Z. E. Wright on the affirmative, and by E. B. Colburn and W. R. Wyatt on the negative. Messrs. Lund, Thackrey and Hammerli decided in favor of the affirmative. A motion for a five-minute recess was carried. Mr. Newman delivered a declamation. An essay on "James Watt" was read by C. A. Holler. Music came next: S. S. Cobb, committee. Declamation, A. C. Cobb. All who heard the Hamilton *Recorder*, edited and read by E. M. Paddleford, will agree that the paper was an excellent one. Forsyth and Yeoman were the names presented for membership. Mr. Lund favored the Society with a short but interesting talk. His remarks were good. Further comments are unnecessary. Extemporaneous speaking was enjoyed by all. We like to see visitors.

C. A. C.

## Means of Illustration.

Two farms of 171 and 100 acres, for the most part surrounded by durable stone walls, subdivided into fields of variable size to suit the system of management.

A large variety of standard experimental grains in cultivation in fields and experimental plots.

A well-planned barn for grain, hay, horses and cattle; and a piggery of six pens, with separate yards.

Shorthorn, Aberdeen-Angus, Galloway and Jersey cattle; Berkshire, Poland-China, Jersey Red and Essex swine.

Farm implements of improved patterns.

Collections of grains, grasses and forage plants.

Orchards, containing 275 varieties of apples, 80 of peaches, 50 of pears, 16 of plums, 20 of cherries and 10 of apricots.

Small-fruit garden, with 200 varieties of small fruits, including blackberries, raspberries, gooseberries, currants and strawberries; and vineyard with 100 varieties of grapes.

Forest plantation of twelve acres, containing twenty varieties of from ten to fifteen years' growth.

Ornamental grounds, set with a variety of evergreen and deciduous trees. Sample rows, containing 150 varieties of ornamental and useful shrubs and trees, labeled.

Vegetable garden, with hot-beds and cold-frames and experimental beds. Practice rows for students' budding, grafting, cultivating and pruning.

A well-planned and furnished greenhouse of three rooms, stocked with a collection of native and exotic plants.

Chemical laboratory, with eight rooms, fitted with tables and apparatus for a class

of eighty students; also, physical apparatus, meteorological instruments, and apparatus for advanced chemical work and assaying.

Models, plaster casts and patterns for drawing, and charts for illustration.

Botanical museum, containing a good herbarium, fairly representing the flora of the United States; a collection of native and foreign woods, seeds, nuts, dry fruits; a collection of abnormal wood growths.

Mineral and geological cabinets, including collections of Professor Mudge; a representative collection of the ores of Colorado, New Mexico and Arizona.

Zoölogical museum, containing a typical collection of birds and mammals, mounted; a cabinet of bird skins, eggs and nests; a good collection of reptiles and fishes in alcohol; a large series of land, fresh water and marine shells; a good representation of the insects of this locality, and a collection of invertebrates in alcohol.

Mathematical instruments, — compasses, transits, levels, chains, for field work.

Carpenter shop, with separate benches and tools for thirty students in each class, besides lathes, mortising machine, and general chest of tools for fine work.

Shop for iron work, with forges, vises, drill, etc.

Printing office, with twenty-five pairs of cases, a good assortment of body and job type, a Country Babcock press, a quarto jobber, and a paper cutter.

Telegraph office, with six miles of line, connecting thirty-two branch offices, and as many instruments, and a Remington type-writer.

Sewing rooms, with five machines, models and patterns.

Kitchen laboratory, with ranges, cooking utensils, dining-room furnishings, creamery and dairy furniture.

Music rooms, with four pianos, three organs, and other instruments.

A library, carefully selected and catalogued, containing 6,000 volumes. A reading room is maintained in connection with the Library, where may be found on file forty-five of the leading literary, scientific, technical and agricultural periodicals, and several hundred newspapers, including the principal daily and county papers from all parts of the State.

Armory, containing one hundred stand of arms (breach-loading cadet rifles, calibre .45) with accoutrements.

## MANHATTAN CARDS.

### Manhattan Hotels.

Cottage Hotel, \$1.00 per day.  
Commercial House, \$2.00 per day.

### George Firestone.

Livery, Feed and Stable. East end of Poyntz Avenue.

### Higinbotham, Stingley & Huntress.

Merchants, proprietors Blue Valley Mills Manhattan, Kansas.

### Burgoyne's.

Photograph Gallery. Established, 1859. Opposite Purcell's Bank.

### Clother.

Wm. Knostman, Ready-made Clothing, Hats, Caps, and Gents Furnishing Goods. Opposite postoffice.

### Fox's Book Store.

COLLEGE TEXT-BOOKS, School Stationery, Pencils, Ink, Scratch-books, etc., etc. Manhattan, Kansas.

### Barber Shop and Bath Rooms.

In basement room opposite Purcell's. This is the place to get a good easy shave, a first-class hair cut, and a good, clean bath. Satisfaction guaranteed. Don't forget the place, but give me a call and be convinced.

P. C. HOSTRUP, Proprietor

### Allen Bros..

Opposite the Postoffice, keep a full line of Groceries, Flour, Fruits, Candies, Nuts, etc. Their goods are fresh and first-class, and prices are low and Goods delivered free in any part of the city and on College Hill. We invite all to call, and we will endeavor to give satisfaction.

ALLEN BROS.

### Manhattan Bank.

E. B. Purcell, banker. J. W. Webb, cashier. A general banking business transacted. Bills of Exchange issued on all principal cities and towns of Europe. All collections have personal, faithful and prompt attention of our attorneys. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

### E. B. Purcell,

Corner of Poyntz Avenue and Second St., has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, &c., &c., &c. Goods delivered in all parts of the city, and at the College, free of charge.

### Kansas Educational Notes.

PROF. J. D. WALTERS.

If the school children in Kansas would each plant one tree this season, it would add 500,000 trees to the forestry of Kansas.

The law which went into effect March 10th makes it an offense for any news-dealer to sell the *Police Gazette* or similar elevating (?) journals.

Prof. F. A. Fitzpatrick, the worthy Superintendent of Leavenworth schools for the past eight years, has resigned his position for different business relations, much to the regret of the people.

State Superintendent of Instruction Lawhead estimates the amount of school lands in Kansas remaining unsold at 350,000 acres. The permanent school fund now on interest amounts to \$3,520,000.

THE following paragraphs are culled from Senator Plumb's speech in the United States Senate on the Blair Educational Bill:—

This bill was the outgrowth of the demoralized condition of things which always precedes a Presidential campaign. If there is any time in which the Congress of the United States or the people who mold public opinion are less qualified than at any other time for the serious concerns of government, for that wise and careful provision of financial affairs that ought always to be an accompaniment of legislation, it is that period which precedes a Presidential election, when issues are being made, when the interests of candidates are being forwarded, and when we are laying plans, traps, whereby we may catch our unwary adversaries. At that time measures for the benefit of some individual person or some class of persons or some section of the country are always attractive, and then there is a rush pell-mell, every party seeking to outrun every other party in devotion to that particular interest, in order to get votes. This measure was the outgrowth of that demoralized and that demoralizing epoch immediately preceding the last Presidential election. But for that it never would have had a respectable vote in this body, and but for that its chances of passage would now be at the minimum. The promises then made have returned to vex those who made them.

What is the justification for it? The Senator from New Hampshire said what I think no Southern Senator has yet said, that it was because the Southern States were unable themselves to meet the requirements of popular education within their limits.

The South is not representing today its inability to carry on a system of education which will be broad enough and extensive enough and useful enough to embrace every single child of school age within its limits, whatever intermeddling people may be alleging in her behalf. Quite the contrary. The South is boasting of her natural resources, of the skill, energy, and enterprise of her people, of her increasing wealth, of her possession of everything which is desirable to those seeking money and opportunity for investment.

Did the South start at the close of the war lower in the financial scale than Kansas, Nebraska and Minnesota? Is there any one who believes that if the Southern States had done as liberally in proportion to their means since the close of the war as Kansas, Nebraska, and Minnesota have done they would today have so large a proportion of illiterates as at present. The taxable valuation in the South is nearly as large per capita as in the West. It is as large in Louisiana as in Kansas, and Kansas supports not only schools sufficient to give to all her children instruction in all the rudimentary branches, but great numbers of high schools in which instruction is given which prepares the pupils for entrance to colleges.

Is the soil in the Southern States any less fertile than in the West? The South will not say so. Is the climate less favoring? What Southern State will admit it? What is lacking? The enumerations of the items which go to make up the property of the South has not so far been made by those who represent the South on this floor.

South Carolina in 1877 levied only \$282,451 for school purposes. The State

of Louisiana, with a population in 1870 of \$708,000, with an assessed valuation of \$435,000,000, levied \$726,000. In 1870, with an assessed valuation of \$253,000,000, levied \$456,000. The Southern States only levy on an average about one half what is levied by the Northern States for school purposes. Some of them levy not more than one quarter as much in proportion to taxable valuation. When the war was over, and five years after the war closed, there was not one of all the States which I have named that had not taxable valuation largely in excess of the State of Kansas. What was the difference against them in that year compared with that State? They had been through the war for four years, but they had the same rich soil they had had before, the same climate, the same great forests of timber, the same mines of coal and iron, the same navigable water open all the year round, and they were naturally favored above all other sections of the United States. Was that worse to start with than comparatively nothing?

Yet the State of Kansas since that time has appropriated more than four times more in proportion to its population, and having regard also to its wealth, than any Southern State has appropriated, and it has done it not upon the basis of inherited wealth: it has done it upon wealth which it has created meanwhile. In 1861, at the close of the Territorial period, the State of Kansas, emerging from its own war only to enter into another one, expended \$1700 for school purposes. In 1862, in the midst of that great struggle, it increased the appropriation to \$11,000, in 1863 to \$26,000, in 1864 to \$84,000, and in 1865 to \$137,000.

It is not money that the Southern States lack: it is the spirit to do the work and make the necessary sacrifice. You may give them from the National treasury not only \$77,000,000, but ten times \$77,000,000, and every dollar you give them will be not a help to education, but actually a disaster to it. Money does not educate people. Education is born of the determination to know, of that keen instinct quick to discern the advantage of knowing, followed by the determination to put forth every effort and to use every appliance in order that the requisition may be made. Is the native, sitting under the bread-fruit tree of the equatorial region, who has only to open his mouth and it is filled, thereby stimulated to exertion? Will the South, hanging upon the National treasury for money for school purposes, and justifying itself by the claim that the North owes this money to it because slavery was abolished, and that therefore you are getting your own, be likely to be stimulated to that effort without which there can be no effective education?

The passage of this bill and the distribution of this money will be a serious blow to the educational system of the South. What it needs is the stimulus of self-help; and in the four or five years last past, during which time I have given attention to this subject, I am glad to say that the South is increasing year by year its expenditures for school purposes, and the cause of education has been sensibly quickened. If let alone and allowed to stand upon its own resources, and not encouraged to believe that it can hang like a leech upon the National treasury, it will continue to increase the scope and efficiency of its system, stimulated by a rising appreciation of the necessity of education for all its people; and as it widens the foundation of the structure, as it adds school-house by school-house, teacher by teacher, out of the money that it has earned, and which it must earn before it can pay, it will find that a structure thus built will be enduring to the end, and will not be shaken by storms or undermined by neglect; and it is only such a system as that which can be of any value to the South or to anybody else.

There are places in the State of Massachusetts where there are more illiterates than there are in the State of Kansas, and places in the State of Massachusetts where there are more illiterates than there are in certain places in the Southern States. Kansas has a less proportion of illiterates than Massachusetts by more than 60 per cent. That does not necessarily mean that the great body of the people of Kansas are more intelligent than those of Massachusetts. There is a

certain amount of illiteracy that cannot be removed. The millennium will not come this year. There will always be people who cannot read and write. There is a certain amount of scum upon the surface of every great swiftly-flowing river. The illiteracy prevailing in Massachusetts cannot be materially reduced by levying taxes, just as it cannot be considerably reduced in Kansas. In other words, both States have substantially got to the maximum of what money will do. The illiteracy is one of importation, and not of local origin.

So in the South there is the illiteracy which the war found there, the black people of the age of fifty, sixty, seventy-five, and even a hundred years. No amount of money will ever remove that. It is not intended while they are used as the basis of the distribution that they shall ever have any of the benefit of it. But as these are eliminated from time to time, and as the people down there are inspired by their appreciation of the need of universal education, not only as a good in itself, but as a means to pecuniary prosperity, all other kinds of illiteracy will disappear as well.

I am glad to bear testimony to the courageous men on the other side of this Chamber who put aside as unworthy of them that portion of this fund which goes to their States.

#### Earnings.

The labor of the students in the industrial departments is principally a part of their education, and is not paid for unless the student is employed—outside of required hours of labor—upon work for the profit of the College. Students are so employed upon the farm, in the gardens or the shops, and about the buildings. The labor is paid for at rates, varying with service rendered, from eight to ten cents an hour. The Superintendents strive to adjust their work to the necessities of students, and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly pay-roll for the past year ranges from \$377 to \$456.

Many students obtain work in the city or upon neighboring farms, and so pay a part of their expenses. Students employed in the shops are allowed to work somewhat for their own profit, in the manufacture of articles for sale and use. In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide by earnings outside of term-time, or from other sources, for the larger part of their expenses. The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education if he has the ability to use his chances well.

#### Industrial Arts.

*Industrial Arts.*—The training in these departments is designed to be systematic and complete in each, so that any student, following a single line diligently through a whole four-years' course, gains the essentials of a trade and a reasonable degree of skill. Those who wish only a general acquaintance with the arts can take shorter courses in several of them; but all are to select with definite purpose. In the established course, young men are required to take the regular term in the carpenter shop and on the farm and gardens whatever the industrial chosen. Young women are required to take one term in the kitchen laboratory and one in the dairy, though other industrials may occupy their course.

*Dairying.*—During the spring term, daily in structure and practice in the different branches of dairying is given the ladies of the second year by the Instructor in Household Economy. A dairy, well equipped in modern appliances for the manufacture of butter and cheese, is connected with the Department of Household Economy. Here the regular dairy work is supplemented by a short course of lectures intended to explain the best practices in the art of butter and cheese making, and to give the reason therefor. The following topics cover, in the main, the instruction given in the class: Influence affecting the quality and quantity of milk; butter making; the household and factory system of cheese making. Creameries; "deep" and "shallow" setting system; packing and preserving butter.

*Agriculture and Horticulture* are required of young men as industrials during one term of the second year and one term of the third year. In these, practice is made to illustrate and emphasize the teaching, and covers essentially the same ground.

*Carpentry, etc.*—On entering the shops, all take the same first lessons in sawing, planing

and dressing lumber, making mortises, tenons and joints, and in general use and care of tools. Later, one who chooses a trade is provided with work directly in the line chosen; while the farmer's course provides for general training in a great variety of operations, rather for ingenuity than skill. In the full course of a carpenter, special instructions are given in the whole range of work, from framing to stair building. Carpentry is required of young men during one term of the first year.

In iron work, instruction is given in ordinary work, —forging, filing, tempering, etc.

*Printing.*—Two courses are pursued in this art. In one the student is taught the implements or tools employed in typography, and how to use them; composition; imposition; correcting proof; technical terms; presses and their workings; and the general duties of a first-class workman. Everyone is encouraged in studying the rise and progress of printing and related arts. Habits of accuracy and thoroughness are required in order to advancement. The second course of lessons, alternating with those of the first, embraces instruction in spelling, capitalization, syllabication, punctuation, proof-reading, preparation and criticism of essays, and such other work as will make the student accurate and expert in language. Wilson's Punctuation is the text-book; but much of the instruction is oral,—such as grows out of the every-day experience of the office.

Admirable drill is furnished by the INDUSTRIALIST to all, but especially to those who take the full course. The printing which the departments of the College require gives to the advanced student a fair knowledge of the principles and practice of job work.

*Telegraphy.*—The course of training involves for beginners the characters that compose the alphabet, and combinations of these characters into words and sentences—attention being paid to spelling and to short and precise expressions in messages,—abbreviations, signals, forms of messages, train orders, reports etc. To the more advanced is given regular line business, as press reports, messages, cipher messages, and orders in all forms used by prominent telegraph companies, together with the necessary book-keeping, upon exact copies of the blanks in actual use, thus giving the students an understanding of the work of an operator. A portion of the time is devoted to instruction in the management of lines, batteries, instruments, etc. The elementary principles of electricity, magnetism and electro-magnetism, involved in telegraphy, are taught and illustrated by experiments. The more recent inventions related to the art are discussed and explained. Pope's Handbook of the Telegraph is used as a text-book.

*Sewing.*—Young ladies are taught in all ordinary forms of sewing with needle and machine, and in cutting, fitting and trimming dresses and other garments. A straight-line system of cutting and fitting is taught, and systems are furnished to students at wholesale rates. They may furnish materials, and work for their own advantage during the hour of practice, under the direction of the Superintendent.

*Instrumental Music.*—Provision is made for the teaching of music upon instruments of all sorts. A full course upon the organ or piano extends over four years, including harmony and composition; but students may take lessons for a single term if they choose. The College furnishes the instruments for daily practice, but the instruction is paid for at usual rates.

#### General Course of Study.

Each student is expected to take three studies besides one hour's practice in an industrial art; and variation from this rule can be only with consent of the Faculty.

Parallel courses are offered to both sexes with such differences as their necessities seem to call for. The following gives the general scope of the two; but fuller explanations are found in the annual catalogue.

FIRST YEAR.	FALL TERM.	Arithmetic. English Analysis. Geometrical Drawing.
	WINTER TERM.	Book-keeping, Drawing. English Structure. United States History.
	SPRING TERM.	Algebra. English Composition. Botany.
SECOND YEAR.	FALL TERM.	Algebra completed. Elementary Chemistry. Horticulture. 12 Lectures in Military Science.
	WINTER TERM.	Geometry. Practical Agriculture or Household Economy. Organic Chem. and Mineralogy. 12 Lectures in Military Science.
	SPRING TERM.	Geometry completed, 5 weeks. Drawing, 5 weeks. Entomology. Analytical Chemistry.
THIRD YEAR.	FALL TERM.	Trigonometry and Surveying. Physiology. General History.
	WINTER TERM.	Mechanics. Agricultural Chemistry. Rhetoric.
	SPRING TERM.	Civil Engineering. Drawing, (or Hygiene). Chemical Physics. English Literature.
FOURTH YEAR.	FALL TERM.	Agriculture or Literature. Meteo-logy. Psychology.
	WINTER TERM.	Logic, Deductive and Inductive Zoology. Structural Botany.
	SPRING TERM.	Geology. United States Constitution. Political Economy.

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## KANSAS STATE AGRICULTURAL COLLEGE.

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### COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

College Lands and all business connected with their sale are in charge of the Land Agent.

Bills against the College should be presented monthly, and, when audited, are paid from the office of the Treasurer, in Manhattan.

All Payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka.

The INDUSTRIALIST may be addressed through Prof. E. M. Shelton, Managing Editor. Subscriptions are received by Supt. Geo. F. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Kellerman, chairman of the committee on Museums.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding places, etc., may be obtained at the office of the President or by letter.

### A Mountain Farmer.

When old Jim Railey wants any coffee or gunpowder, he puts some eggs or truck on the spotted steer that serves him as a pack-horse and comes down to the settlement "to trade." In talking with Jim on one occasion I found that he chose that particular time to leave his mountain ranch "because hit don't do to burn bresh and log-heaps on the full of the moon, hit plum ruins the sile." Having heard Jim express many other surprising opinions on points of agricultural theory and practice, I was interested to see some of his farm processes at home, and gladly accepted an invitation to his clearing. Four miles of climbing over a rough mountain trail, for wagon road there is none, brought me to the bars which answered for a front gate, when the appearance of a surly dog reminded me of the custom of the country. So I didn't attempt to let down the bars, but shouted the regular greeting. "Hello! Have you got any biting dog?" Jim quickly appeared at the door with a hearty "Howdy? come right in and take a cheer." But the weather was too fine to waste in a cabin, and we set out together to "salt the sheep" and observe things in general. It was one of those still October days when the tap of the little downy woodpecker on an oak half a mile away sounded as if it came from a distance of a dozen rods. The tinkle of the stock bells came to us out of the depths on every side and their lonesome monotones only seemed to add a new hush to the stillness of the woods. Jim's sharpened senses soon detected a familiar note as he said: "Yan is my sheep in that chestnut cove. They know whar the feed is." In chestnut time he told me that his sheep and hogs "got rolling fat." He had a right smart of hogs—for they reckoned, though he didn't just always keep a straight count. This drove of porkers cost him not a nickel for feed. The stock he wintered was fed only in the very coldest weather, with what "roughing" he could collect—cornstalks, beanvines, and the like. No, he never lost any for lack of care. Chestnuts would hold on till well into December, and then bitter mast (acorns), with coltsfoot (galyx), twigs of trees and shrubs would serve till "green turf" came in spring. Sheep were fed occasionally when snow covered up everything in the woods. The danger to them came in the spring, when they were "pizened" with huckleberry (*andromeda*) and hemlock (*leucothoe*). There was no trouble, however, in "fetchnin' 'em out" with strong coffee if they were found before the poison had seriously affected them. The wildcats take a lamb or a pig now and then, but a man with a good rifle beats the varmints. We found the sheep and salted them, and Jim called my attention to their skill in detecting the nuts under the heavy mass of leaves. I took a dozen sound nuts and as many wormy ones and laid them on a rock by the salt and the sheep picked out the good ones and never touched an unsound one. On our way back to the cabin Jim proved that his eye was as sharp as his ear. A twisted little sassafras some distance away at once caught his attention and he marked the spot. "That's the very idea for a scythe snath. Hit's got just the store crook." He showed me a "turkey sign," and a spot where it seemed to me his hogs had been rooting had been the scene, as he pointed out, of a "master deer fight," and some hair in a scrubby locust and the prints of pointed hoofs which appeared on closer examination confirmed his close judgment.

Jim's cabin, like others in the mountain, is in a hollow, so as to be close to an ever flowing spring. Barn he has none. He raises a little corn and some of the common vegetables. A sorghum patch furnishes him with syrup, and his bee-skips help to furnish sweets. The bull-tongue is his plough and cultivator. It is a single tooth, like a cultivator share

fastened to a home-made beam. His harrow is a scrubby tree top. These farming utensils and the household furniture are the same that his father used a century ago. This is how his churn was made: A section of a sassafras log was bored through from end to end with an auger. Then strips were split out from the inside until the shell was of proper thickness. This was smoothed inside and a groove cut out to hold the bottom, made from a dry board which was closely fitted in, and the green shell left to shrink neatly about it. The churn was perfectly tight, although it was bound by no hoop. The "lye gum" is another institution made from a hollow log. A dug-out is anchored in the brook, and in this Mrs. Railey stands while she does the family washing. She first dips the clothes in the clear water, and then, drawing them over the end of the log, she labors them with a paddle, repeating the process until they are clean. Almost everything used is made at home. Even the shoe-thread is from flax grown on the clearing, and Jim tans the leather from which he makes his own shoes.

Of course, I took dinner with Jim, and his table was bountifully furnished with fried chicken and bacon, boiled cabbage, baked potatoes and baked pumpkin, hard corn bread and butter, sweet milk and buttermilk, coffee of the blackest and strongest, sweetened with sorghum. The first meal at a mountain board is a trying experience in one respect, for the table is built very high and the benches low, so that the edge of the table is on a level with the shoulders. This arrangement enables the feeder to sip coffee from his cup without raising it, and by placing his mouth at the edge of his plate he can shovel in his provender without much effort. It requires some practice, however, to accomplish these feats with grace and precision. After dinner we sat about the big stone fireplace, while Jim smoked home-grown tobacco in a home-made pipe, and Mrs. Railey took down from a shelf an earthen jar sealed with tarred cloth, which she proceeded to open. The contents, canned peaches, were emptied into a large tin basin, and over these was poured a quantity of honey, and afterwards some sweet cream. Several spoons were then placed in the dish and Jim, taking his pipe from his mouth, handed one to each of the youngsters and a large one to me, inviting all hands to "lay to." The order was promptly obeyed by every one but me. I had eaten so heartily that the dessert could not excite my appetite.—*Philadelphia Press.*

### Demagogues at Work.

The present is a favorable time for the demagogue to put in his work. The "bloated corporation" howl, and "overbearing railroad monopolies" afford them daily text for exuberent editorials. They roar out to the farmers, "It is because of the exorbitant charges for carrying your grain, cattle and hogs to market that makes them so cheap."

There is just about truth enough in the assertion to make it a stalwart lie and a very mischievous one. Supply and demand arrange prices. Pork is cheap in this country because Germany has closed her ports against the "American hog," and France has levied a duty on it that nearly excludes it. England, heretofore the great grain market of America, buys stingily and because she can get it in countries that dare not, like this, exclude her products.

If the carriage of wheat from the wheat-growing districts of the West to the Atlantic were reduced five cents a bushel, who would get the five cents? The demagogue would say the producer, and ninety-nine farmers out of a hundred would join him in saying so; and yet it is rarely true. Examine the price of this article for years back and also the fluctuating prices of freight, and it will be found that, generally, the freight re-

duction was followed by a lowering of the price of wheat equal to the reduction in freight. It is the consumer, and not the producer, that has to pay the freight. There are exceptions to the rule, but, as in other cases, the exceptions strengthen our position. If one wheat-growing section was favored with low freight and another high, the price would range higher in the favored section than in the other. But even in this case, the difference in price would not net the difference in price of freight: the laws of traffic would fix an equilibrium about midway between the two extremes.—*Concordia Blade.*

### Boycotting a Worthy Woman.

The boycott upon Mrs. Esther A. Gray, the resolute woman who keeps a bakery at 508 Hudson street, was continued all day yesterday. Drunken ruffians surrounded her shop all day, interfering with her customers and trying to ruin her business. They even went to neighboring grocery stores and told their proprietors that they would be boycotted if they sold Mrs. Gray's bread; and all of them, less plucky than the woman, ceased to sell it. We should like to have the names of all these worthies for publication. One of them declined to send home a lady customer's purchases because she asked that a loaf of Mrs. Gray's bread be sent with them. When the lady asked why, the brave grocer said: "If it's Gray's bread, we can't even send it home for you. There's a boycott against it." "Then, if you can't send the bread, you needn't send the groceries," replied the lady, and Mrs. Gray had a fresh champion. All day long a policeman stood in front of the bakery, but made no effort to drive away the cowardly ruffians who were pestering customers. We are glad to hear that many persons on their way up town last night took our advice and stopped and bought a loaf of Mrs. Gray's bread, and that she is doing a flourishing business; but this does not atone for the shameful conduct of the police, or make their failure to clear the street of the bullying knights any less reprehensible. The women of the neighborhood are fast putting the men to shame in the way they fight the boycott.—*Evening Post.*

### Our Exchanges.

The records of the Secretary of State show that ninety-four new towns have been chartered and founded in Kansas within the last twelve months.—*Atchison Champion.*

The wheat crop of this county is almost wholly destroyed from the effects of the severe winter. Wheat sown in corn will perhaps make a fair crop, but that sown on stubble ground will be plowed under. Broom corn, last year, was the most profitable crop raised in the country, and it might be the proper thing for each farmer to plant a few acres of this crop to help the corn and oats carry him over.—*McPherson Freeman.*

Richard Trout and Wm. Northrup, two noted hunters, arrived yesterday from the head waters of the Big Blue, where they were on a successful hunting expedition. They purchased a large boat up there, with a carrying capacity of four tons, and paddled their way down the Kaw to this place. They had on board 300 ducks, 200 muskrat hides, seventy-five ground hogs, fifty-four skunks and one large mountain wolf. This cargo of furs was trapped and shot in the space of a month, in a region of country as thickly populated as Douglas county, but where the inhabitants were not aware that they lived in the midst of wild animals and varmints of such a dangerous character. These hunters leave again tomorrow for the tributaries of the Kaw. This large amount of furs on board a Kaw river schooner, when viewed from the bridge, was a reminder of forty years ago, when hunters and trappers sailed alone upon the waters of that raging river.—*Lawrence Herald-Tribune.*

# THE INDUSTRIALIST.

SATURDAY, APRIL 24, 1886.

EDITED BY THE FACULTY.  
E. M. SHELTON, MANAGING EDITOR.

SENATOR PLUMB's recent speech on the Blair Educational Bill is a forcible, common-sense, and we may say unanswerable, statement of facts and inferences as held by those who oppose that extravagant measure. It certainly is an amazing fact that a measure like this, which involves the ultimate expenditure of \$77,000,000, for which there has not been the slightest demand, even from those sections likely to be the beneficiaries of the act, should receive the sanction of so conservative a body as the U. S. Senate. It is hardly true of Kansas people that they are opposed to the provisions of the Blair bill; we are inclined to think that they, as a rule, have no opinion in the matter. The energetic speech of Senator Plumb will be quite likely to help them to views on this important question.

In the recently-published report of the experiments on the growth of wheat forty years in succession on the same land at Rothamsted, Sir John Bennet Lawes states, in summing up the subject: "When the price of grain is high, larger crops can be grown more profitably than when the price is low. This fact, which Sir John knows, and which practical men have felt through their finger ends, explains to a considerable extent why in new countries, where prices rule low, efforts at the production of large crops by expensive measures have never proved profitable. We do not wish to be understood as asserting that this fact justifies the slovenly farming all too common in the West, because slovenly farming is always wasteful and expensive: it simply prohibits a great cash outlay per acre."

We are delighted to be able to chronicle the evidences of genuine reform shown recently by the seed department of our National Department of Agriculture. The seeds which have lately been sent out, so far as we have seen, are strictly experimental sorts which cannot be had in the markets, but which promise to furnish useful additions to our stock of agricultural plants. We recently received a collection of twenty-odd sorts of seeds of grasses peculiar to the western plains,—a collection which seemed to us to have a special interest for western farmers. When we remember how, some two years ago, in response to our request for seeds of experimental value we received one pound (exact measure) of "Central Park Lawn Mixture" as put up by a New York seed firm, and in the original packages, we are forced to acknowledge that even an agricultural department may grow.

## Common Sense.

Our lofty ideals, like our hopes, are too often glittering generalities with little substance to endure the hard knocks of plain common sense. Men of business experience are likely to feel, and with some reason, that the average subject matter of books and of schools is lacking in this essential, and so to distrust it.

And yet who can tell just what this common sense, or "horse sense," as some call it, is? There is no doubt in anybody's mind of its presence in some people and some business notions, and its absence in others; but few make any attempt to find in what it consists. In

general, we speak of a ready, clear perception of common relations and analogies as essential to it, and know that the chances of its presence in a man are increased by constant contact with men and things in many relations. The man of daily cares in details gains more of such ready judgment than one of greater natural tact without his opportunities. For this reason, business men prefer that youth become familiar with many details, even at the expense of general discipline of mind in scientific principles, for fear that absorption in such general truths may prevent the greater gain in application.

The fact is, that common sense pertains to every region of thought, and the men whose names and influence have staid in the world have been those who brought most of plain sense to bear upon the problems of life and thought. The inventors of the world, to whom we now give honor, have been men of gumption. Though the "cranks" and the enthusiasts have sometimes suggested the ideas, the men of good "horse sense" have put these ideas to use.

So, again, in purely scientific research, the men of practical inquiry have established facts and verified theories, even while suggestions of speculative brains have the credit of discovery. All that bears the stamp of genuine knowledge of the universe as it is holds its place by practical tests with common sense as watchman and interpreter.

All progress in law and morality is marked by the presence of simple, common-sense truth, with general acceptance. Is not the simplicity of the gospel itself really the appeal to common sense as touching the common interests of humanity? All great reforms of private life or public manners have been achieved by the appeal of common sense to common sense.

It seems that the philosophy of common sense is deeper than our usual definition suggests in confining it to ready judgment of relations in practical affairs; for it reaches to sound judgment in all relations of common interest from lowest to highest. The saying is true, then, "Good common sense is very uncommon sense."

The effort in education is to develop this good sense as early as possible and as fully as possible; and the more it leads to contemplation of human interests in every phase of life, the more satisfactorily it meets this end.—President Fairchild.

## Art Tariff.

The Union League Club of New York has been ascertaining the sentiments of American artists, art institutions and teachers in the United States on the subject of the art tariff; assuming that these parties were the only ones in the country that could be benefited by the present high duties, if there was, indeed, any benefit to be had. The canvass was very thorough and as impartial as possible,—1281 artists responding. The result was as follows:

Number of artists in favor of free art	1197
Number in favor of 10 per cent duty	26
Number in favor of 30 per cent duty	7
Number in favor of specific duty	33
Number in favor of partly free art	18

Of the 154 art teachers heard from, 148 reported in favor of free art, 3 in favor of partly free art, 2 of a ten per cent duty, and 1 of a specific duty.

Art begets art. The more articles of art one has, the more one wants. To advance in art, examples of the highest order should be abundant. It seems that the gratifying result of this canvass should convince the most "duty-ful" member of Congress.—Prof. Walters.

## The Age of Cheap Things.

For nearly a quarter of a century, but particularly during the past three or four years, people have watched the steady though not uniform lowering of prices, with the growing feeling that this was not a temporary condition of things but one of tolerable permanence, and likely to outlive the present generation at least. In respect to farm products, which have suffered in the general shrinkage of values as much perhaps as any other class of goods, statistical facts are often quoted which lend support to the opposite view. It is asserted on the authority of the last census that the proportion of producers to consumers is constantly diminishing, the percentage of those engaged in agriculture being now only about forty-five of the population, whereas a hundred years ago the agricultural class was about eighty per cent of the people.

The facts, too, that in most of the eastern and long-settled States there has been a steady diminution in the crop yield per acre; that the best lands on the continent have long since been brought under cultivation,—have seemed to give ground for hope of "better days" for farmers in the shape of higher prices for farm products. In face of these undisputed facts, matters have gone on steadily, in the pessimist's view, from bad to worse: prices which are supposed to rest secure on "bed rock" were soon discovered to have no better foundation than the most unstable of quicksands, dull markets have been succeeded by duller, "bear" influences seeming everywhere to be in the ascendant.

In this country, what Carlyle has called the "cheap and nasty" tendencies of the age are less severely felt by farmers than elsewhere because (1) lands are cheap and abundant, and (2) they are generally owned by those who cultivate them; but in countries like Great Britain, where agricultural lands have a high value, based upon the idea that they will support three persons,—namely, the owner, the tenant and the laborer,—the low prices have almost produced a revolution in agriculture and the system of land-holdings, and are confessedly the active cause of much of the politics that agitates that country just now.

That we have entered upon an era of enduring low prices, seems to us plain from the great number and apparent permanence of the influences which now work to depress prices. In general, it may be said that all the great modern discoveries in art and science, all the inventions of real merit in mechanics have for their object to make things cheaper; certainly any discovery or device that had the opposite effect of making things dear and scarce would not likely bring great fame or profit to its discoverer. We praise the wonderful helpfulness and efficiency of improved agricultural machinery; but we are not likely to remember that these aids to cheap and easy production are as helpful to other farmers as to ourselves. If we of Kansas had for our exclusive use the sulky plow and the self-binder, while all other wheat-growers were doomed to use no more efficient tools than the old "bull-tongue" plow and the sickle, then wheat-growing in Kansas would be "bonanza" farming indeed. But in fact the self-binder and the header are every bit as helpful to the Australian farmer or the California ranchman as to the Kansas granger, and everywhere these machines cut down grain and prices with nearly equal facility.

Even improvements in these arts and

sciences not immediately concerned with agriculture affect it almost as powerfully and directly as those referred to above. The improved locomotive, cheaper and better cars, the marine compound engine, have given us cheaper, quicker and easier transportation to trade centers; they have had the effect of opening up great tracts of hitherto uncultivated lands; and so have placed agricultural producers everywhere upon even terms in the markets of the world. Five years ago the mere rumor of a failure in the wheat crop of Kansas was sufficient to cause a stiffening of prices all along the line. Now the failure of wheat in half a dozen States scarcely moves the sluggish pulse of the markets, all because India and Australia and the Black Sea country stand ready to supply from their abundance any deficiency in the American supply.

That this era of low prices is a blessed one to mankind in general—placing within the easy reach of millions good food, clothing, books, and a thousand luxuries hitherto to them unknown,—we cannot doubt.

The lesson to the farmer of all this, as it seems to us, is: (1) Any hope of founding his business upon the prevailing high prices of some one or more farm crops is certain to prove a delusion. The high prices of these are sure to vanish quickly and permanently. (2) The farmer must use the best improved machines for cheapening the cost of production, and he must place himself in position to receive all the benefit of the cheapening process as it applies to those trades and callings which supply his wants. (3) He must farm better; and he must avail himself more fully than ever of the experiences of others and the results of scientific investigations as they apply to farming.—Prof. Shelton.

## General Duties and Privileges.

General good conduct, such as becomes men and women anywhere, is expected of all. Every student is encouraged in the formation of sound character by both precept and example, and expected "upon honor" to maintain a good repute. Failure to do so is met by a prompt dismissal. No other rules of personal conduct are announced.

Classes are in session every week-day except Saturdays, and no student may be absent without excuse. Students enrolled in any term cannot honorably leave College before the close of the term, unless excused beforehand by the Faculty. A full and permanent record of attendance, scholarship and deportment shows to each student his standing in the College. After each monthly examination a report of advancement is made to parents; and any student, upon leaving College at the close of a term, may receive a certificate of standing.

Chapel exercises occupy fifteen minutes before the meeting of classes each morning, and unnecessary absence from them is noted in the grades.

Twice in each month the whole body of students gather for a lecture from some member of the Faculty, or for the rhetorical exercises of the third and fourth-year classes. On alternate weeks all the classes meet at the same hour, in separate class-rooms, for exercises in elocution and correct expression.

There are three prosperous literary societies, two of them of many years' standing. All meet weekly, in rooms set apart for their use. The *Alpha Beta* is open to both sexes, and holds its meetings Friday afternoons. The *Webster* and the *Hamilton* admit to membership gentlemen only, and meet on Saturday evening.

The Scientific Club, composed of members of the Faculty and students, meets in the Chemical Laboratory on the first Friday evening of each month.

Every Friday evening a students' prayer meeting is held in a College Society Room, led by a member of the Faculty. On the Sabbath students are expected to attend services at least once in the different churches of the city.

Occasionally during each term the College Hall is opened for a social gathering of faculty and students, in which music, literary exercises and friendly greeting find place.

Public lectures by prominent men of the State are provided from time to time, as opportunity offers. All are free.

The Manhattan Horticultural Society meets monthly, and other farmers' associations occasionally, at the College, and the students have the privilege of attending these meetings.

# THE INDUSTRIALIST.

SATURDAY, APRIL 24, 1886.

## CALENDAR.

1885-86.

FALL TERM.—Sept. 10th to Dec. 18th.  
WINTER TERM.—Jan. 5th to Mar. 26th.  
SPRING TERM.—Mar. 29th to June 9th.  
June 9th, Commencement.

Persons receiving the "Industrialist" need have no fear of bills to come; for the paper always stops with the expiration of subscriptions, unless continued by favor of a friend or of the College.

## BONDS WANTED.

School District bonds issued on College blanks will bring their par value at once. Address T. P. Moore, Holton, Jackson Co., the College Loan Commissioner.

The regular "monthly" examinations will be held on Friday of next week.

The first division of the third-year class, twelve strong, gave public declamations in the Chapel yesterday.

In giving the names, last week, of the members of the third-year class who participate in the Undergraduates' Exhibition of the forthcoming Commencement, we inadvertently omitted the name of Mr. C. A. Murphy.

It should be borne in mind that the great cattle sale, consisting of Shorthorns, Jerseys and one or more cross-breeds from the College herds, and Shorthorns from the herd of Messrs. Bill & Burnham, will be held at the College barn on the afternoon of June 8th,—the day before Commencement.

From Prof. J. W. Sanborn we have just received a pleasant letter, and a personal one, except in this: the Professor expects, if home College duties do not prevent, to be with us at the great College stock sale on June 8th. There will be a long list of Kansas farmers here who will be glad to greet him.

Our Horticultural Department is "laying it self out," as it were, these days in the matter of tree planting. Hundreds of deciduous and evergreen trees and shrubs have recently been given position on the grounds in a way that delights everybody, and reflects no end of glory on our modest Horticultural Department.

Our Printing Department has just finished binding a large part of the edition of 800 copies of the proceedings of the Ann Arbor meeting of the American Association for the Promotion of Agricultural Science—a pamphlet of fifty-eight pages. The pamphlet, from the printers' standpoint, is a very neat job, the whole work reflecting no end of credit on Supt. Thompson and his youthful printers.

Minneapolis has more wind-mills and less lightning-rods than any town of its size in Kansas.—*Minneapolis Messenger*.

If we did not know that the *Messenger* never, no, never, brags or exaggerates in any way about its home people, but is always coy and discreetly modest, we should say that this was the deepest laid and most sententious piece of boasting ever seen in print,—saying in effect that the folks in that bend of the Solomon are the most intelligent in Kansas.

Mr. Louis B. Rogers, whom many old students will remember as a bright and promising student of this College some ten years ago, attempted to commit suicide by repeatedly plunging into the Kaw river at Kansas City on Wednesday, as we learn from the *Kansas City Times* of Thursday. Mr. Rogers has been a resident of Kansas City for some years, and has succeeded in building up a strong law practice there. Recently, ill health and overwork seem to have turned his head, and this partially demented condition is the explanation of his terrible endeavor of Wednesday.

A considerable increase in the time given to "rhetoricals," made necessary by the recent great increase in the size of classes, was arranged for next year by the Faculty at its last meeting. The principal points in the new scheme may be stated as follows: The Friday afternoon exercises are to be continued as usual as to time, but to be used wholly as "public exercises," some member of the Faculty or division of the third or fourth-year class occupying the hour by alternate Fridays; class rhetoricals to occupy one hour each week—the fifth, of Wednesday, except in the case of the "B" and first-year

classes, which get their rhetoricals under the Professor of English and at the recitation hour of this class.

A moderate-sized audience had gathered in the Chapel last evening, when Prof. Canfield began his lecture on "Our Inheritance." The lecture, while not strictly historical, was full of the materials of history, dealing in a forceful, cogent way with the things moral, intellectual and to some extent physical and geographical, which made the men and women who built the nation. The intellectual awakening, that something "in the air" at the time of the settlement of America, was presented in an especially happy manner. Of course our numerous modern lapses of national virtue received appropriate condemnation, followed by the prophetic perorative moral. "Avarice and indifference," we are told, are the sins that will ultimately throttle us. We felt relieved to learn that it was not the labor question or socialism or intemperance or greed of office, as lecturers on these themes have so long and faithfully urged. The lecturer plainly had the audience with him from the start, and would have kept their attention had he made his speech an hour longer than it was.

Hereafter the postoffice will not be open from 12 to 1 P. M. on Sunday, owing to the late change of trains, and will be open only at the usual time in the afternoon.—*Manhattan Mercury*.

## COLLEGE SOCIETIES.

**ALPHA BETA.**—Chartered, December 26th, 1870. Meets in the Society Hall every Friday at 2:30 P. M. Ladies admitted. New students cordially invited to attend.

MISS IDA QUINBY, President.

J. W. VANDEVENTER, Secretary.

**WEBSTER.**—Chartered, January, 1871. Meets in Society Hall every Saturday evening. Visitors, especially students, always welcome,

C. M. BREESE, President.

W. J. BURTIS, Secretary.

**SCIENTIFIC CLUB.**—Meets on first Friday evening of each month. Composed of members of the Faculty and advanced students. Devoted to the improvement of its members in general scientific knowledge, and the encouragement of original investigations.

PROF. WALTERS, President.

Mrs. KEDZIE, Secretary.

**HAMILTON.**—Chartered January 29th, 1885. Meets every Saturday evening. Admits gentlemen only. Visitors always welcome.

N. E. LEWIS, President.

A. WALTERS, Secretary.

The Y. M. C. A. meets at 3:30 P. M. Sunday. D. G. ROBERTSON, President.

C. A. MURPHY, Secretary.

The Y. W. C. A. meets Tuesday afternoon.

F. HENRIETTA WILLARD, President.

NELLIE COTTRELL, Secretary.

## REPORTS.

SOCIETY HALL, April 17th, 1886.

At the call of President Breese, the Webster Society came to order. D. G. Robertson led in prayer. Debate, question, "Resolved, That the Knights of Labor were justified in their recent strike." The affirmative was supported by F. L. Parker and J. R. Laswell; the negative, by D. G. Robertson and F. Shaw. The judges gave their decision two for the negative and one for the affirmative. Declamations were delivered by M. P. Davis and E. T. Martin. I. R. Miller read an essay, "Danger Ahead;" discussions, "Free Thought and Free Speech," J. B. Brown; "The Increase of our Navy," C. M. Beck. W. J. B.

SOCIETY HALL, April 23, 1886.

Society called to order by President Quinby. The exercises of the afternoon opened with congregational singing. C. A. Murphy led in devotion. At roll-call each member responded with a quotation, giving the name of the author. Miss Nettie Abell gave a select reading, after which Miss Atwood read an essay on Alfred the Great. Debate was conducted by F. A. Marlatt and H. A. Dunn on the affirmative, and W. M. Wright and G. A. Gamble on the negative. The question was, "Resolved, That Gladstone's Irish bill would be injurious to Ireland, if passed." The judges decided unanimously in favor of the negative. Mr. Sisson next presented an interesting number of the *Gleaner*. Music followed. The music committee, Nellie Cottrell, had secured the services of the renowned Pickanini Club, whose musical genius is simply wonderful, and was fully enjoyed and appreciated by the Society. Our well-known friend, A. M. Green, figured largely in this troupe. After a recess of five minutes, the Society engaged in extemporaneous speaking. The "remains" of the Pickanini Club were then prevailed upon to render another selection.

SOCIETY HALL, April 17th, 1886.

In the absence of both the President and the Vice-President, the duty of calling the Hamilton Society to order fell to Secretary Walters. A. C. Cobb was called to the chair. The Marshal being absent, F. Dinsmore was appointed Marshal pro tem. R. Forsyth was elected a member of the Society. Under the order "Initiation of Candidates," Messrs. Weaver and Forsyth became members. A declamation was then delivered by H. H. Meyers. "Resolved, That the U. S. should appropriate \$1,000,000 to endow a National School of Architecture," was discussed by W. VanZile and J. A. Campbell and F. Dinsmore on the negative. Two of the judges decided in favor of the affirmative. According to custom, recess came next. After recess, F. Brown read a selection entitled "The History of the Printing Press." Under the order of Music, Z. E. Wright, accompanied by W. O'Harrow, favored the Society with a violin solo; S. L. Ellis delivered an "Artemus Ward" address on the subject, "The Crater of Vesuvius;" Mr. Hammerli spoke in Mr. Wickizer's place. A considerable amount of business was disposed of, and a profitable and pleasant season of extemporaneous speaking took up the time till 10:30. C. A. C.

## A Good Education Pays.

1. In dollars and cents. All testimony of statistics agrees in showing that educated laborers, of all ranks, have better work and better wages than the uneducated.

2. In influence and position. Careful estimates make it certain that the chances of promotion to places of trust and power among men are almost two hundred times as great to an educated man as to an uneducated.

3. In usefulness. The bulk of good work in the world,—discovery, invention, government philanthropy and religion,—is brought about by those who learn to think by study.

## Expenses.

Tuition is free, and no general fee for incidental or contingent expenses is charged. In a few special departments of instruction, the following payments are made in advance to the Secretary:

In analytical chemistry, the students pay \$3 a term for the chemicals and apparatus used in their laboratory practice and analysis.

In the printing office, young men, in their first year, pay \$3 a term for office expenses. Advanced students have the use of the office for the work performed during the industrial hours.

In telegraphy young men pay \$3 a term for office expenses.

Young women are furnished both printing and telegraphy free of expense, these two offices, with the Sewing and Cooking Departments, being provided especially for their industrial training.

Lessons in instrumental music, two a week, are from \$10 to \$14 per term, according to its length; one a week, \$6 to \$8.40. One half is to be paid to the instructor in charge with the first lesson, the other half at the middle of the term.

The cost of text-books at the book-store is, for the first year about \$4 a term; for the second year, \$2.75; for the third year, \$7.50; and for the fourth year, \$5.50.

Board and washing are not furnished by the College. Board, with furnished room, can be procured in private families at from \$2.75 to \$4 per week. Some students board themselves at even less cost, and rooms for the purpose can be obtained at a rent of from \$1 to \$2.50 a month. Washing costs from \$0.50 to \$1 a dozen pieces.

Ordinary expenditures, aside from clothing and traveling expenses, range from \$100 to \$200 a year.

## Grounds and Buildings.

The farms, with the stock, orchards, gardens, vineyards, forestry and ornamental grounds, are used for experiment and illustration. All that is not strictly experimental is managed with a view to highest economy and profit.

On the larger of the farms, upon an elevation at the western limits of the city of Manhattan, and facing toward the city, are the College buildings. All are of the famed Manhattan limestone, and surrounded by pleasantly-arranged and planted grounds.

College, 130 by 250 feet in extreme dimensions, arranged in three distinct structures, with connecting corridors. This building contains in its two stories and basement, offices, cloak-rooms, studies, chapel, library, reading room, model kitchen and dairy, sewing rooms, society rooms and ten class rooms.

Chemical Laboratory, one story, 36 by 99 and 46 by 75 feet of floor space, in form of a cross. It contains eight rooms, occupied by the Department of Chemistry and Mineralogy.

Mechanics' Hall, 39 by 103 feet, of two stories, occupied by the Carpenter shop and finishing room, Telegraph and Printing offices, and Music rooms.

Horticultural Hall, 32 by 80 feet, one story and cellar, having cabinet room, class room, work room and storage, with greenhouse attached.

Two stone dwellings, occupied by the President and the Professor of Agriculture.

Armory Hall, 46 by 96 feet, and two stories. This building, which has served many purposes, is now to be fitted for armory and drill room below, and for class room, laboratory and museum of the Department of Natural History.

The barn is of stone, 48 by 96 feet, with side-hill basement stables, granary, tool-room, etc.

The blacksmith shop, piggery, implement shed, and various out-buildings, are of wood.

## Objects.

This College now accomplishes the object of its endowment in several ways.

First, it gives a substantial education to men and women. Such general information and discipline of mind and character as help to make intelligent and useful citizens are offered in all departments, while the students are kept in sympathy with the callings of the people.

Second, it teaches the sciences applied to the various industries of farm, shops and home. Chemistry, botany, entomology, zoölogy and mechanics are made prominent means of education to quick observation and accurate judgment. Careful study of the minerals, plants and animals themselves illustrates and fixes the daily lesson. At the same time, lessons in agriculture and horticulture show the application of science; and both are enforced by actual experiment.

Third, it trains in the elements of the arts themselves, and imparts such skill as to make the hands ready instruments of thoughtful brains. The drill of the shops, gardens, farm and household departments is made a part of a general education to usefulness, and insures a means of living to all who make good use of it. At the same time, it preserves habits of industry and manual exertion, and cultivates a taste for rural and domestic pursuits.

Fourth, it strives to increase our experimental knowledge of agriculture and horticulture. So far as means and circumstances permit, experiments are undertaken with a view to more definite results than ordinary experience can give. By this method the students themselves are trained to a more accurate observation and judgment in these practical tests of principles in farming.

Fifth, it seeks to disseminate such practical truths as have stood the test of scientific inquiry. For this purpose it publishes the *INDUSTRIALIST*; and its officers share in debates and consultations of farmers and horticulturists throughout the State. Each winter a series of six Farmers' Institutes is held in as many different counties of the State. In these the Faculty share with the people in lectures, essays and discussions upon topics of most interest to farmers.

## MANHATTAN CARDS.

**G** George Firestone. G Livery, Feed and Sale stable. East end of Poyntz Avenue.

**H** Higinbotham, Stingley & Huntress. Merchants, proprietors Blue Valley Mills Manhattan, Kansas.

**B** Burgoyne's. Photograph Gallery. Established, 1859. Opposite Purcell's Bank.

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**B** Barber Shop and Bath Rooms. In basement room opposite Purcell's. This is the place to get a good easy shave, a first-class hair cut, and a good, clean bath. Satisfaction guaranteed. Don't forget the place, but give me a call and be convinced.

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**A**llen Bros. Opposite the Postoffice, keep a full line of Groceries, Flour, Fruits, Candies, Nuts, etc. Their goods are fresh and first-class, and prices are low and Goods delivered free in any part of the city and on College Hill. We invite all to call, and we will endeavor to give satisfaction.

**M**anhattan Bank. M. E. Purcell, banker. J. W. Webb, cashier. A general banking business transacted. Bills of Exchange issued on all principal cities and towns of Europe. All collections have personal, faithful and prompt attention of our attorneys. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

**E**. B. Purcell. Corner of Poyntz Avenue and Second St., has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, &c., &c. Goods delivered in all parts of the city, and at the College, free of charge.

### Kansas Educational Notes.

PROF. J. D. WALTERS.

Upon the recommendation of Representative Perkins, W. Wyatt, of Howard, Kansas, has been appointed a cadet at the United States Naval School at Annapolis, Maryland.

The scholars of the public school in this city yesterday observed Arbor Day by planting sixty shade and ornamental trees in the school lots. The girls of the intermediate department made a large flower bed and filled it with choice seeds and bulbs.—*Medicine Lodge Index*.

Colonel Goss, the State Ornithologist, has placed his new acquisition of birds in cases, along with his already large collection. The addition comprises seventy-one birds, some of which are very rare and beautiful. They are located in the lower cases on the south side of the room. Colonel Goss's collection is now one of the most complete in the country.

At a late meeting of the Regents of the State Normal School, the entire Faculty was re-elected. The Board made arrangements for the appraisement of the saline lands. The appraisement will begin not later than May 6th. The Regents report that the Normal is in a most satisfactory condition. The commencement exercises will be held on June 17th, and there will be thirty-eight graduates. This is said to be one of the largest classes that ever graduated from a State Normal School.

SEVERAL weeks ago a number of Topekans invested \$150 in the Louisiana lottery, and drew \$60. The sixty dollars was reinvested, and a few days ago the company, which is composed entirely of Santa Fe officials and employees, received fifteen dollars in return for this same investment. This amount was also invested and now awaits results. Next time they will probably get nothing. This is the result of what this fool lottery has distributed, including the Wiss prize of \$15,000, about \$20,000 in the vicinity. An estimate of the money invested in the lottery from this section of the country would place the figure at nearly \$1,000,000. The investors in Topeka alone can be numbered by hundreds. However, let them squander their money. Squanders will waste money any way, and might waste it in many ways more harmful to themselves and the public than by buying tickets in a lottery.—*Topeka Mail*.

Wamego might say of a truth, misery loves company, for we believe that at the rate lotteries are being patronized by some of our citizens, one single year will pay back the principal, and a handsome interest besides, on all ever received here from this source, and this patronage is largely by our young men, who can ill afford to take such chances to receive something for nothing. Yet with every thing against them, men continue to grow wiser, and believe that they can bet on another man's game and win; but often unpaid board bills and threadbare clothes speak in silent eloquence. Touch not the uncertain thing!—*Wamego Agriculturist*.

### The Indians Under the Law.

The *Black Hill Times* (Dakota) of March 24th records an important first step in a new line of Indian policy, namely, the sentence of a Sioux Indian to a term in the penitentiary for assault to murder; the crime having been committed upon another Indian in the Indian Territory, and the trial having been held in an American court under the provisions of an act passed at the last session of Congress, through the earnest efforts of Senator Dawes and the Indian Rights Association. Before the passage of this law, Indian criminals were subject only to tribal authority; a state of things, which, in practice, granted immunity for all manner of lawlessness from theft to homicide. The utmost punishment inflicted by the tribal authorities was a fine of a few ponies. The effect of this absence of law and justice was most mischievous, though unfortunately it was in accord with the whole reservation system, all the influences of which tended to make the Indian irresponsible, indolent, savage and lawless. Such a system, indeed, could be guaranteed to debauch and barbarize a white race in two generations, and how much more the Indians! The new law, the first case under which has been noted, makes a crime committed

by an Indian punishable in our courts. The change thus introduced is calculated to exert an important influence over the tribes subjected to it. It is the beginning of a new and practical education for the Indian; an education which if gradually extended will in no long time prepare him to exercise the duty of citizenship, by familiarizing him with the restraints and obligations which hold civilized society together and maintain order and progress. It is a matter for sincere congratulation that this initial step has been taken; for it is in some sense an assurance that the old, irrational, hopeless muddle called our Indian policy has been outgrown, and that henceforth all the energy and intelligence available will be concentrated upon the organization and evolution of a new plan of treatment.—*New York Tribune*.

THE actual damage and loss sustained in the killing of a locomotive is not generally known, and is much greater than is generally supposed. If the fire is not drawn immediately after an engine has been blown off, the crown and fire sheets are invariably scorched and warped, necessitating their replacement, the actual expense attending the work being placed at not less than \$300. The removal of eccentrics, eccentric straps, throttles or link-lifters is not attended with such heavy loss; but in each instance the cost of repair will not fall far short of \$100, as it cost \$25 to run an engine into the shop for examination. Over 100 Missouri Pacific engines have been killed during the strike, and the loss to the company in the way of repairs is estimated at nearly \$25,000.—*Globe-Democrat*.

### Board and Rooms.

No provision for rooms and board is made at the College. The students all find homes in families or in family boarding-houses, at rates varying from \$3.00 to \$4.00 a week for board with furnished room. Lists of boarding-places, with prices and accommodations, can always be had at the President's office, and students are required to notify the President of their rooms when selected.

Lists of rooms for rent without board may also be had by those who wish to board themselves. Directions and advice are gladly given by any of the officers.

### Entering College

Applicants for admission at the beginning of the year, in September, must be at least fourteen years of age, and able to pass a satisfactory examination in reading, writing, arithmetic including percentage and interest, geography and elements of English grammar. Those applying later in the term must show sufficient advancement to enter the classes already in progress. Every effort should be made to begin with the first of the term, in order to advance with the class from the first.

Applicants of mature age who, for lack of advantages, are unable to pass the full examination may be received on special conditions.

Applicants for advanced standing in the course must pass examination in all the previous studies of the class to be entered; but, if they have pursued such studies in other institutions of similar rank, they may receive credit for their standing in those institutions upon presenting a certificate from the proper officer, showing that their course has been equivalent to that given here.

### Labor.

Every encouragement is given to habits of daily manual labor during the College course. Only the one hour of daily practice in the industrial departments is required; but students are encouraged to make use of other opportunities for adding to their ability and means.

The College employs students, when possible, on the farm and in the gardens, shops and offices, paying wages varying in rate with accomplishment from eight to ten cents an hour.

All labor at the College is under the direction of the Superintendents of the departments, and offers opportunity for increasing skill and efficiency. In regular weekly statements, the students are required to observe business forms and principles, showing from their daily account when and where the work was performed. A few students who have shown especial efficiency are employed during the summer vacation.

The shops and offices are open afternoon and Saturdays for the accommodation of skilled students in work for their own advantage. Everywhere the student who works wins respect; and it is a matter of pride to earn one's way as far as possible.

### Required Industrials.

The need of general training of youth to some degree of dexterity in the every-day work of life, is recognized everywhere nowadays. In this College, each young man spends

time enough in the Carpenter Shop to learn how to use the common tools with ease, and do plain work with some idea of exactness. He also gives hours enough to farm and garden work to have clear notions of what they involve, and interest in the success or failure of varieties and methods. Each finds his critical spirit in such matters strengthened by test of his own abilities and judgment in everyday experience. These occupy one term of each year of the course prior to the fourth.

The young women find a similar provision for their familiarity with every-day affairs in the requirement of one hour a day for one term of the first year, in sewing adapted to their advancement, and in the practice in cooking and dairying required during two terms of the second year. Nimble fingers with the needle may not serve the same purposes as before the sewing-machine snatched the long seams out of the hands of the women; but the ready judgment and taste that make the beauty and comfort of dress are gained only by handling, with careful instruction, the tools that are employed about dress. In the same way, the tact of house-keeping comes by practice under tuition far more readily than under the sharp raps of chagrin and dyspepsia from sour bread, heavy cake and badly-cooked meats.

The required industrials of the course will have served their purpose well in such ways, even if they do not pave the way to skill in these universal arts.

### Earnings.

The labor of the students in the industrial departments is principally a part of their education, and is not paid for unless the student is employed—outside of required hours of labor—upon work for the profit of the College. Students are so employed upon the farm, in the gardens or the shops, and about the buildings. The labor is paid for at rates, varying with service rendered, from eight to ten cents an hour. The Superintendents strive to adjust their work to the necessities of students, and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly pay-roll for the past year ranges from \$377 to \$456.

Many students obtain work in the city or upon neighboring farms, and so pay a part of their expenses. Students employed in the shops are allowed to work somewhat for their own profit, in the manufacture of articles for sale and use. In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide by earnings outside of term-time, or from other sources, for the larger part of their expenses. The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education well if he has the ability to use his chances.

### Industrial Arts.

**Industrial Arts.**—The training in these departments is designed to be systematic and complete in each, so that any student, following a single line diligently through a whole four-years' course, gains the essentials of a trade and a reasonable degree of skill. Those who wish only a general acquaintance with the arts can take shorter courses in several of them; but all are to select with definite purpose. In the established course, young men are required to take the regular term in the carpenter shop and on the farm and gardens whatever the industrial chosen. Young women are required to take one term in the kitchen laboratory and one in the dairy, though other industrials may occupy their course.

**Dairying.**—During the spring term, daily in structure and practice in the different branches of dairying is given the ladies of the second year by the Instructor in Household Economy. A dairy, well equipped in modern appliances for the manufacture of butter and cheese, is connected with the Department of Household Economy. Here the regular dairy work is supplemented by a short course of lectures intended to explain the best practices in the art of butter and cheese making, and to give the reason therefor. The following topics cover, in the main, the instruction given in the class: Influence affecting the quality and quantity of milk; butter making; the household and factory system of cheese making. Creameries: "deep" and "shallow" setting system; packing and preserving butter.

**Agriculture and Horticulture** are required of young men as industrials during one term of the second year and one term of the third year. In these, practice is made to illustrate and emphasize the teaching, and covers essentially the same ground.

**Carpentry, etc.**—On entering the shops, all

and dressing lumber, making mortises, tenons and joints, and in general use and care of tools. Later, one who chooses a trade is provided with work directly in the line chosen; while the farmer's course provides for general training in a great variety of operations, rather for ingenuity than skill. In the full course of a carpenter, special instructions are given in the whole range of work, from framing to stair building. Carpentry is required of young men during one term of the first year.

In iron work, instruction is given in ordinary work, —forging, filing, tempering, etc.

**Printing.**—Two courses are pursued in this art. In one the student is taught the implements or tools employed in typography, and how to use them; composition; imposition; correcting proof; technical terms; presses and their workings; and the general duties of a first-class workman. Everyone is encouraged in studying the rise and progress of printing and related arts. Habits of accuracy and thoroughness are required in order to advancement. The second course of lessons, alternating with those of the first, embraces instruction in spelling, capitalization, punctuation, proof-reading, preparation and criticism of essays, and such other work as will make the student accurate and expert in language. Wilson's Punctuation is the text-book; but much of the instruction is oral,—such as grows out of the every-day experience of the office.

Admirable drill is furnished by the INDUSTRIALIST to all, but especially to those who take the full course. The printing which the departments of the College require gives to the advanced student a fair knowledge of the principles and practice of job work.

**Telegraphy.**—The course of training involves for beginners the characters that compose the alphabet, and combinations of these characters into words and sentences—attention being paid to spelling and to short and precise expressions in messages,—abbreviations, signals, forms of messages, train orders, reports etc. To the more advanced is given regular line business, as press reports, messages, cipher messages, and orders in all forms used by prominent telegraph companies, together with the necessary book-keeping, upon exact copies of the blanks in actual use, thus giving the students an understanding of the work of an operator. A portion of the time is devoted to instruction in the management of lines, batteries, instruments, etc. The elementary principles of electricity, magnetism and electro-magnetism, involved in telegraphy, are taught and illustrated by experiments. The more recent inventions related to the art are discussed and explained. Pope's Handbook of the Telegraph is used as a text-book.

**Sewing.**—Young ladies are taught in all ordinary forms of sewing with needle and machine, and in cutting, fitting and trimming dresses and other garments. A straight-line system of cutting and fitting is taught, and systems are furnished to students at wholesale rates. They may furnish materials, and work for their own advantage during the hour of practice, under the direction of the Superintendent.

**Instrumental Music.**—Provision is made for the teaching of music upon instruments of all sorts. A full course upon the organ or piano extends over four years, including harmony and composition; but students may take lessons for a single term if they choose. The College furnishes the instruments for daily practice, but the instruction is paid for at usual rates.

### General Course of Study.

Each student is expected to take three studies besides one hour's practice in an industrial art: and variation from this rule can be only with consent of the Faculty.

Parallel courses are offered to both sexes with such differences as their necessities seem to call for. The following gives the general scope of the two; but fuller explanations are found in the annual catalogue.

FIRST YEAR	FALL TERM.	Arithmetic. English Analysis. Geometrical Drawing.
	WINTER TERM.	Book-keeping, Drawing. English Structure. United States History.
SPRING TERM.	FALL TERM.	Algebra. English Composition. Botany.
	WINTER TERM.	Algebra completed. Elementary Chemistry. Horticulture. 14 Lectures in Military Science.
SECOND YEAR	FALL TERM.	Geometry. Practical Agriculture or Household Economy. Organic Chem. and Mineralogy. 12 Lectures in Military Science.
	SPRING TERM.	Geometry completed, 5 weeks. Drawing, 5 weeks. Entomology. Analytical Chemistry.
THIRD YEAR	FALL TERM.	Trigonometry and Surveying. Physiology. General History.
	WINTER TERM.	Mechanics. Agricultural Chemistry. Rhetoric.
FOURTH YEAR	SPRING TERM.	Civil Engineering. Drawing, (or Hygiene). Chemical Physics. English Literature.
	FALL TERM.	Agriculture or Literature. Meteorology. Psychology.
WINTER TERM.	Logic, Deductive and Inductive Zoology. Structural Botany.	
	SPRING TERM.	Geology. United States Constitution. Political Economy.

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### COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Land Commissioner.  
College Lands and all business connected with their sale are in charge of the Land Agent.

Bills against the College should be presented monthly, and, when audited, are paid from the office of the Treasurer, in Manhattan.

All Payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka.

The INDUSTRIALIST may be addressed through Prof. E. M. Shelton, Managing Editor. Subscriptions are received by Supt. Geo. F. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Kellerman, chairman of the committee on Museums.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding places, etc.,—may be obtained at the office of the President or by letter.

### Bird Slaughter.

Some seven years ago there appeared in Paris at a ball of the *demi-monde* a woman wearing on her head-dress a dead bird. The bird had artificial eyes, and its wings and tail were spread out so as to give it a life-like appearance. It was a small stuffed bird, not bird-skin stretched on wires. Its introduction as an ornament in fashionable bad society was not received with much favor at first, although the wearer succeeded in attracting attention to herself by the singularity of her adornment. This was all that she desired or intended to accomplish by fastening a bird's corpse to her head-gear. She had not the smallest expectation that she would be imitated, even by her immediate companions, still less that the whole world of fashionable good society in France, England and America would "fall into line" at her heels. Probably her only thought was that the oddity of her costume would serve as a striking advertisement, like "S. T., 1860, X," and cause her to be talked of among the males and females of her kind. Strange indeed are caprices of fashion. Seven years have passed by, and we find the eccentricity of a woman of the town become the craze of millinery—so great and deadly a craze that State Legislatures are considering bills to prevent the extinction of our song-bird, and of all birds not too large to be worn on the bonnets of women and children. Nothing more revolting to good taste can be imagined than the "remains" of an animal fresh from the dissection of a taxidermist as an ornament to a woman's forehead. The very suggestion ought to excite horror and disgust, as well as pity for the slaughtered songsters of the grove. But the instincts of refined taste and the promptings of humane feeling are alike crushed by the Juggernaut of fashion. The appeals of naturalists and the sarcasms of the press are alike unavailing to suppress or even lessen the massacre of the innocents. The destruction goes on at a rate limited only by the number of birds within reach of the sportsmen's guns and nets. Seventy thousand corpses of the white curlew were delivered in New York in four months' time. They have almost disappeared from our coasts. Linnets, bluebirds, orioles, woodpeckers, snowbirds, song-sparrows, indeed everything that has feathers and is not too large a load to be carried on one's head, is coming to the shambles of millinery. As the smaller varieties become scarce, the larger ones are taken and cut in pieces, their heads going to one style of head-dress, and their wings and tails to another. But no one can tell how large a bird can be worn on a woman's head by walking on Fifth avenue. It is necessary to take a ride on a Second avenue car to get the full effect of the prevailing fashion. There one may see on the head-gear of the poorer classes, and especially of colored women, every species of the feathered kingdom smaller than a prairie chicken or a canvas-back duck, and every color of the rainbow. The public are beginning to realize that there is danger of the total destruction of small birds to satisfy the demands of an odious trade founded upon a worse than barbarous fashion.—*Evening Post.*

million dollars. All grades of cows share in the shrinkage, commanding lower figures than for many a year, and in view of the increased and closer competition from more distant points favored by railroads, farmers are beginning to ask whether agricultural land near large cities is not held at too high a price in comparison with the value of cheaper lands elsewhere.

Similar complaints are heard in the neighborhood of other large cities,—Boston, Philadelphia, Cincinnati, Chicago, St. Louis, and also less populous centers. The suppliers of milk to such places are everywhere discontented with prices. But what farmer is content now-a-days with the prices of what he has to sell? Indeed, the same question can be fittingly asked with regard to those engaged in every branch of business in every country in Christendom. This is an era of low prices everywhere. To what is the universal stagnation due? Is it to middlemen? Middlemen flourish best in the flushest times. Is it to overproduction? The world could readily use all that is produced. Is it to railroads? They can aggravate, but how can they cause it by increasing the facilities and cheapening the rates of transportation? Is it to the tariff? The distress is as great in free-trade England as in the protectionist United States and Germany. Out West it is widely attributed to the persistent contraction of values due to the policy of making gold (the production of which is steadily diminishing) the only standard of value, thus increasing its price and correspondingly decreasing the price of all that is to be bought with it. The true solution of this problem is a hard task; but it would be harder to get everybody to acknowledge when it is worked out.—*Rural New-Yorker.*

### Corn Culture.

B. P. Ware, speaking on corn culture before the Massachusetts Agriculture Society, said if the Pilgrim Fathers had not been fortunate enough to discover this golden grain the first winter after they landed on our shores, the condition of this country at the present time would be doubtful. Corn can give us more grain per acre than any other cereal, and more fodder than any of the grasses, and its influence on the prosperity and wealth of the United States is greater than that of any other cultivated plant. We have thousands of acres of plain, light land, producing less than a half ton of hay per acre annually, that could be profitably devoted to corn without interfering with the other operations of the farm. But we must adopt the newer methods of culture, and use the improved labor saving implements adapted to large fields. The speaker recommended plowing in the fall, but he would cultivate thoroughly just before planting, to destroy the weeds and fine the soil: 1000 pounds of suitable fertilizer applied annually will produce good crops of 50 bushels per acre, and two tons of fodder. He prefers to plant in drills  $3\frac{1}{2}$  feet apart with a horse corn-planter, dropping the kernels about five or six inches apart in the drills, or thick enough to allow an average of one stalk to the square foot on the whole surface. Before the corn comes up he drags the field with a smoothing drag of plank, having a two-inch strip of inch-board nailed underneath for a pulverizer. After the corn comes up he uses the Thomas harrow three times, at intervals of a few days, to kill the weeds, after which the cultivator or horse-hoe, run two or three times between the rows, will do the work of cultivating, and leave nothing for the hand hoe.

O WOMAN! You are charged with being the direct cause for the annual murder, in America alone, of 5,000,000 harmless creatures, the pretty birds. And all because your shameless master, or siren mistress, Fashion, orders you to wear the poor, murdered birds upon your head-gear. These same birds, if allowed

to live in peace with us, as their and our Maker intended, would have been not less useful to us than the horse or ox. The birds are our chief natural protection against the insect hordes now accredited with destroying yearly over \$300,000,000 worth of food and fiber plants. The Cape Cod bird killers shoot 40,000 tern each year, and near Philadelphia 11,000,000 bobolinks have been killed in a single month. A New York dealer handles 30,000 skins a year, and 70,000 are supplied to the New York dealers in four months, from a single village. In one London auction room over 760,000 bird-skins were sold in four months last year. These are but a few figures. The result of the slaughter is that in many localities the birds are almost if not wholly annihilated. Happily, the American Ornithologist's Union has taken the good work in hand of counteracting the brutal custom of fashion, and of enforcing the laws against bird-slaughter. Queen Victoria is arrayed against the custom of wearing birds in England, and it is proposed to organize societies of fashionable women in our cities to bring into disrepute this wicked folly.—*Our Country Home.*

THIRTY-TWO men and 140 women are busy in the annex of the Agricultural Department building supplying the Congressional demand for seed just now. Six thousand paper packages of vegetable seed, 500 of flower seed, 300 of tobacco, 20 quarts of sorghum, 28 quarts of sugar beet, 50 of grass and 32 of cotton seed is the allowance of each Senator and Representative.

### Our Exchanges.

Jewell is the first corn county in the State, and there is said to be a statesman behind each shock of corn.—*Thomas Cat.*

The moral is, that when an American citizen is flush, he is for capital; and when he gets out of funds, he is for the red flag and for the destruction of the aristocrats; and when he makes a raise—which in this country he is likely to do—he is again for "vested rights." So runs the world away.—*Atchison Champion.*

Out in the west part of Washington a number of the residents have joined forces to build a limited waterworks system. A large well, tank and wind-mill is to be put in immediately, we are informed, which will supply a dozen or so houses with all the water they want. That is a good start, and the same plan could be very successfully and profitably adopted in four or five other neighborhoods of the city. The expense is nothing compared to the benefits. Let us have more waterworks on the same plan.—*Washington Register.*

The *Herald-Tribune*, of Lawrence, thus describes operations on the large potato farm of Mr. P. Underwood, near the above place:

Mr. Underwood's potato field embraces eighty or ninety acres. To cut the seed for this vast acreage would seem a great labor, but it is easily accomplished by one man, who, with a machine, can cut from fifty to seventy-five bushels per day. This potato-cutting machine, by the way, is an invention of Mr. Underwood. The ground, instead of being marked out with a hoe, hill at a time, is now nicely and quickly marked off with a plow, constructed especially for that purpose, on which the driver rides at his ease, marking out two rows at a time and at any required depth. The four boys follow and drop into these rows the seed potatoes, one piece every sixteen inches. The four boys easily drop eight acres a day. Then follow a man and team with an implement (also invented by Mr. Underwood) and cover the seeds, two rows at a time, thus planting eight to ten acres per day much easier and better than the work was accomplished by the old-time methods. Mr. Underwood makes a specialty of raising potatoes, and his potato farm is one of the peculiar features of Douglas county farming.

# THE INDUSTRIALIST.

SATURDAY, MAY 1, 1886.

EDITED BY THE FACULTY.  
E. M. SHELTON, MANAGING EDITOR.

## Object of Labor.

There are three ends to be attained by our work. The first is to secure means of living. To do good, of course we must live hence all effort to preserve our lives and to enlarge them becomes justifiable and praiseworthy. Some find their only effort expended for a bare subsistence, content but to live with such pleasures as their unrefined nature and capabilities enable them to appreciate. The struggle for existence exhausts all their energies, and so they plod on with no ambition beyond their incessant toil, no aim but their daily living. Others not only labor for bread, but they value life for the uses to which it can be put; not only for the enjoyment that can be obtained from it, but for the good that can be done with it. They have higher purposes than the gratification of selfish aims and appetites.

Among these higher aims is the second object of all our efforts—success in whatever we do; not success in amassing wealth, but in exalting the character of the workmanship and in perfecting the products of labor. This ambition leads one to do well whatever he undertakes; that is all that is necessary to make the humblest occupation honorable. Such an ambition gives us all our best products, both men and things. Our eloquent preachers, distinguished lawyers, successful doctors and enterprising mechanics and farmers spring from the desire to do best whatever is at hand. Without this overmastering impulse, our farmer would now be plodding on with no better advantages and appliances than his father had. He would be pursuing, year after year, the same unenlightened course of labor, till the soil on his farm becomes exhausted, his orchards die out, his crops diminish, his energies flag, while nothing increases but his burdens and cares.

But there is yet a higher object in labor. A man's calling must do more than to feed and clothe him, more than to inspire him with an ambition to do his best in his work or to honor him by his success in it. It must quicken his thought, enlarge his conceptions, exalt his aims, strengthen his character, make him a wiser, a better and a nobler man. Work must make manhood,—a strong, thoughtful, sympathetic, upright and reverent manhood. It is the full expansion and exercise of all the faculties of one's nature that should be brought about by effort; and, to secure such a result, all social, educational and religious influences are to minister. To neglect one or all of these agencies is to lose power and influence accordingly. If a farmer, lawyer, doctor, jurist or statesman does not, by the work that he is called upon to perform, become a truer and nobler man, then his labors have failed of accomplishing the highest end of life. They may have brought wealth and honor; but if, with these, they have narrowed and belittled the man, withered his social nature, dwarfed him morally and religiously, he certainly is not living a life to be commended.—*Prof. Nihart.*

## Character and Handwriting.

There are some who accept the theory that character may be just as accurately divined from the handwriting of a person

as from the study of the voice, language, or even the countenance. While we would not go to such an extreme and pretend to read in writing all the details of mental and even physical characteristics of the writer, we would say with assurance that there is no other single attainment that reveals so many traits of character as does handwriting.

General harmony, as respects form, proportion and spacing is indicative of the writer's judgment; grace and general artistic effect indicate the degree of his taste and refinement. The quality of line and shade reflects the general nervous condition. A person who is orderly and methodical in his writing will most likely be so in other things. Writing that is ornamented with many flourishes and redundancies indicates a corresponding quality in gesture and flowery speech. Any personal eccentricity will represent corresponding eccentricities of character, even the habit of beginning a letter carefully and neatly and finishing the last page negligently shows a lack of continuity, or an inclination to change from one thing to another before completing it.

Of course, we refer only to the writing of adult persons. School boys or girls may have a flourishing or other craze in their writing, which means no more than do their ordinary flirtations as respects their character as men and women. By the ordinary copy-book method, all practice from the same copies and aspire to the same standard of form and style of writing, but succeed in degrees as variable as their capabilities and length of practice. At once, upon ceasing to practice with thoughtful care as learners, the formal school hand commences to undergo an unconscious change, which is influenced by every personal peculiarity and circumstance of the writer. In this manner the adult writing comes ultimately to be a reflex of the person and his environments. It thus becomes, as it were, individualized, and as truly represents the person as his physiognomy, mien and speech.—*Prof. Nihart.*

## The Winter-killing of Plants.

The winter of eighteen hundred and eighty-six will long be remembered in this section for its severity on plants, and especially on those that are shallow rooted. We speak of them as winter-killing, and are likely to think that it is merely the freezing which does the mischief. More frequently the injury is the effect of drought. Many of the plants which have been more or less injured during the past winter are perfectly hardy farther north, and it cannot be that growing them here has rendered them so much less hardy that the cold of our winter should destroy them. The autumn and early winter were exceptionally dry, so that the soil contained less water than usual. This deficiency in moisture allowed the frost to go deeper into the ground. It is well known that water changes temperature the most slowly of all bodies. Then, the more water in the soil, the more slowly it will freeze and the depth the frost will reach. But when the ground is dry, as it was the last winter, frost forms below the bulk of the roots of many plants, and effectually prevents the passage to the upper soil of water below this frost-line. Although the motion of water through the surface soil is almost entirely suspended, evaporation still goes on from the stems of plants and from the surface of the earth. This evaporation is certainly at a diminished rate compared to that of summer

temperatures, but it is quite sensible. Ice diminishes in weight when exposed, even during the coldest weather. The writer has observed that, as usual, the grass and other tender plants which were covered by snow were scarcely injured; while exposed plants, although otherwise similarly situated, were seriously injured. It is frequently supposed that the snow or other covering protects by keeping the plants warmer; but I think it is the opinion of horticulturists that a greater effect is due to the moist condition in which the soil is kept. This opinion of fruit-growers is based upon many experiences which need not be mentioned at length here. Prominent among these experiences is the common one that a dry and cold winter is severe, and that a wet and cold one is not necessarily so.

When practicable, tillage to keep the soil open and porous and mulching are means of securing a more moist condition of the soil. In many cases, however, nothing can be done to prevent the destruction incident to such winters as the last.—*Prof. Failyer.*

## Earnings.

The labor of the students in the industrial departments is principally a part of their education, and is not paid for unless the student is employed—outside of required hours of labor—upon work for the profit of the College. Students are so employed upon the farm, in the gardens or the shops, and about the buildings. The labor is paid for at rates, varying with service rendered, from eight to ten cents an hour. The Superintendents strive to adjust their work to the necessities of students, and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly pay-roll for the past year ranges from \$377 to \$456.

Many students obtain work in the city or upon neighboring farms, and so pay a part of their expenses. Students employed in the shops are allowed to work somewhat for their own profit, in the manufacture of articles for sale and use. In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide by earnings outside of term-time, or from other sources, for the larger part of their expenses. The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education if he has the ability to use his chances well.

Expenses.  
Tuition is free, and no general fee for incidental or contingent expenses is charged. In a few special departments of instruction, the following payments are made in advance to the Secretary:—

In analytical chemistry, the students pay \$3 a term for the chemicals and apparatus used in their laboratory practice and analysis.

In the printing office, young men, in their first year, pay \$3 a term for office expenses. Advanced students have the use of the office for the work performed during the industrial hours.

In telegraphy young men pay \$3 a term for office expenses.

Young women are furnished both printing and telegraphy free of expense, these two offices, with the Sewing and Cooking Departments, being provided especially for their industrial training.

Lessons in instrumental music, two a week, are from \$10 to \$14 per term, according to its length; one a week, \$6 to \$8.40. One half is to be paid to the instructor in charge with the first lesson, the other half at the middle of the term.

The cost of text-books at the book-store is, for the first year about \$4 a term; for the second year, \$2.75; for the third year, \$7.50; and for the fourth year, \$5.50.

Board and washing are not furnished by the College. Board, with furnished room, can be procured in private families at from \$2.75 to \$4 per week. Some students board themselves at even less cost, and rooms for the purpose can be obtained at a rent of from \$1 to \$2.50 a month. Washing costs from \$0.50 to \$1 a dozen pieces.

Ordinary expenditures, aside from clothing and traveling expenses, range from \$100 to \$200 a year.

## Grounds and Buildings.

The farms, with the stock, orchards, gardens, vineyards, forestry and ornamental grounds, are used for experiment and illustration. All that is not strictly experimental is managed with a view to highest economy and profit.

On the larger of the farms, upon an elevation at the western limits of the city of Manhattan, and facing toward the city, are the College buildings. All are of the famed Manhattan limestone, and surrounded by pleasantly-arranged and planted grounds.

College, 130 by 250 feet in extreme dimensions, arranged in three distinct structures, with connecting corridors. This building contains in its two stories and basement, offices, cloak-rooms, studies, chapel, library, reading room, model kitchen and dairy, sewing rooms, society rooms and ten class rooms.

Chemical Laboratory, one story, 36 by 99 and 46 by 75 feet of floor space, in form of a cross. It contains eight rooms, occupied by the Department of Chemistry and Mineralogy.

Mechanics' Hall, 39 by 103 feet, of two stories, occupied by the Carpenter shop and finishing room, Telegraph and Printing offices, and Music rooms.

Horticultural Hall, 32 by 80 feet, one story and cellar, having cabinet room, class room work room and storage, with greenhouse attached.

Two stone dwellings, occupied by the President and the Professor of Agriculture.

Armory Hall, 46 by 96 feet, and two stories. This building, which has served many purposes, is now to be fitted for armory and drill room below, and for class room, laboratory and museum of the Department of Natural History.

The barn is of stone, 48 by 96 feet, with sidehill basement stables, granary, tool-room, etc.

The blacksmith shop, piggery, implement shed, and various out-buildings are, of wood.

## Joint Public Sale.

MANHATTAN, KANSAS, JUNE 8th, 1886.

(The day before College Commencement.)

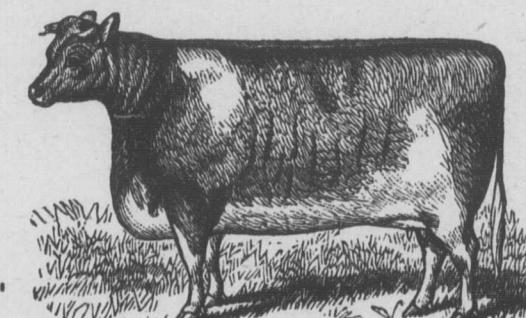
### SHORTHORN, JERSEY

AND ONE OR MORE

### CROSS-BRED CATTLE,

WILL BE SOLD AT THE

Kansas Agricultural College Farm.



The Shorthorns are from the well-known herds of the College Farm and Messrs. Bill & Burnham, including the following noted strains with others: **Torr-Booth**, **Fidgets** (Bell-Bates), **Rose of Sharons**, **Young Marys** (Grace Young), and **Cambridges**. The Jerseys are of superior milking stock, recorded, or eligible to record, in the American Jersey Herd-Book.

A choice lot of recorded **Berkshire** and **Poland-China** pigs will be included in the sale.

TERMS.—Five per cent discount to cash purchasers. Six months' time will be given on approved notes, interest at ten per cent.

For catalogues, address the undersigned.

MANHATTAN, KANSAS.

E. M. SHELTON, Supt. Farm.  
BILL & BURNHAM.

# THE INDUSTRIALIST.

SATURDAY, MAY 1, 1886.

## CALENDAR.

1885-86.

FALL TERM.—Sept. 10th to Dec. 18th.  
WINTER TERM.—Jan. 5th to Mar. 26th.  
SPRING TERM.—Mar. 29th to June 9th.  
June 9th, Commencement.

Persons receiving the "Industrialist" need have no fear of bills to come; for the paper always stops with the expiration of subscriptions, unless continued by favor of a friend or of the College.

## BONDS WANTED.

School District bonds issued on College blanks will bring their par value at once. Address T. P. Moore, Holton, Jackson Co., the College Loan Commissioner.

Mr. P. C. Chamberlain, the everywhere-known correspondent of the *Capital* was a visitor at the College yesterday.

President Fairchild went to Ellsworth yesterday to take part in the Farmers' Institute in progress there yesterday and today.

Mr. F. J. Rogers, one of the bright boys of the Class of '85, has been gratifying his many friends on College Hill with a visit during two or three days of this week.

The Horticultural Department has been kept busy during the week in patching up the lawn which had been worn through in many places by student's feet, particularly along the margins of walks.

We are again placed under obligations to Mr. Chas. N. Eley, a nurseryman and seed-grower of Smiths Point, Chambers county, Texas, for a collection of valuable grass seeds, and a bundle of young grass plants of a sort unusual in this section.

Mr. Chas. W. Garfield, the efficient secretary of the Michigan Horticultural Society, kindly remembers us with a copy of his report as secretary for 1885. This report is a volume of 500-odd pages, and a more interesting and instructive volume of the kind we do not remember to have seen.

Mrs. Winchip entertained the Seniors on Thursday evening. By all accounts, the boys and girls had a delightful time. In response to the question of how they enjoyed themselves, put to members of the class, we received in reply a chorus of such adjectives as "delightful," "nice," "splendid," from which we arrived at the conclusion stated above.

Our presses are hard at work on a 5000 edition of the annual catalogue, which will be ready for distribution long before Commencement. Besides this little job, this office has under way a 1000 edition of the sale catalogue, and the report of experiments of the Farm Department, which is sure to grow into a pamphlet of sixty pages. Busy? Yes, thank you, we are rather.

The fugitive strains of music by choir and band, which reach us so often these days through half-opened Chapel doors, remind us that rehearsals are now in order, and that Commencement is near at hand. Next we shall hear from the same quarter the heavy bass of the Senior and the boyish treble of the third-year student likewise rehearsing for that same conspicuous event.

Thirty grains from as many different ears of corn which had wintered in shocks in the field were recently planted in sand in the Greenhouse, for the purpose of ascertaining to what extent, if any, the vitality of the seed had been effected by exposure. Twenty-three of the grains had sent up their tiny shoots, when the experiment came to an end from an invasion of rats; but enough had been seen to satisfy us that the corn had not been injured by this constant exposure to all of the severities of the winter.

Very low and rapidly-lowering hay-mows obliged us to drive the herd afield as early as April 19th, a date fully two weeks too previous, as we firmly believe. There is no poorer economy, we know, than that seen in the all too common practice of grazing the young grass early, before the tops, and consequently the roots, have had opportunity for growth and development. Let the pasture fields get a strong, half-knee-high growth before being depastured by the herds. The opposite practice is a plain case of "saving at the bung and wasting at the spigot."

It is true that the railroads are obliged to use every truck on four wheels that they have in order to haul the people into Kansas: still we wonder and are beyond measure astonished that ten times as many more people do not come. In fact, we cannot understand how any one can live outside of Kansas. Here we are, for example, right in the midst of spring; the ground is in the best possible condition for plowing and planting, while the roads are free from mud and the very perfection of highways. We cannot understand why people will consent to live in the mud which daubs and besatters all creation east of the Kansas line.

## COLLEGE SOCIETIES.

ALPHA BETA.—Chartered, December 26th, 1870. Meets in the Society Hall every Friday at 2:30 P. M. Ladies admitted. New students cordially invited to attend.

MISS IDA QUINBY, President.

J. W. VANDEVENTER, Secretary.

WEBSTER.—Chartered, January, 1871. Meets in Society Hall every Saturday evening. Visitors, especially students, always welcome.

C. M. BREESE, President.

W. J. BURTIS, Secretary.

SCIENTIFIC CLUB.—Meets on first Friday evening of each month. Composed of members of the Faculty and advanced students. Devoted to the improvement of its members in general scientific knowledge, and the encouragement of original investigations.

PROF. WALTERS, President.

MRS. KEDZIE, Secretary.

HAMILTON.—Chartered January 29th, 1885. Meets every Saturday evening. Admits gentlemen only. Visitors always welcome.

N. E. LEWIS, President.

A. WALTERS, Secretary.

The Y. M. C. A. meets at 3:30 P. M. Sunday.

D. G. ROBERTSON, President.

C. A. MURPHY, Secretary.

The Y. W. C. A. meets Tuesday afternoon.

F. HENRIETTA WILLARD, President.

NELLIE COTTRELL, Secretary.

## REPORTS.

At a called meeting of the Hamilton Society, held on Thursday, April 22d, it was thought best to postpone the regular meeting one week. Prof. Canfield's lecture, which took the place of a regular session, was, as all expected, and as all who heard it can affirm, well worth the time spent in listening to it. The Society returns a unanimous vote of thanks to Prof. Canfield for his address.

C. A. C.

## SOCIETY HALL, April 24th, 1886.

At the call of President Breese the Websters came to order. W. S. Hoyt led in prayer. Debate, question, "Resolved, That we are in a non-progressive age." The affirmative was supported by W. R. Browning and F. H. Avery; the negative, by L. H. Dixon and J. B. Brown. The judges gave their decision two for the affirmative and one for the negative. Declamations were delivered by F. A. Thompson and F. S. Ditto; A. E. Mize read an essay on "The Panama Railroad;" P. S. Creager read a selection from "The Blunders of a Bashful Man." After recess J. E. Payne presented a very interesting number of the *Reporter*. Discussions: "The Mormons," J. F. Kurr; "The Tariff on Wool," H. E. Robb. W. J. B.

## SOCIETY HALL, April 30th, 1886.

Society opened with music, a duet by Misses Brown and Cottrell. Declamation by A. C. Abell. Essay by D. W. Working. Debate on the question "Resolved, That education has done more for mankind than invention," was discussed by M. A. Carleton and Marion Blachly on the affirmative, and O. L. Utter and Emma Secret on the negative. The judges decided in favor of the negative. Owing to the illness of Mr. V. V. Akin, no *Gleaner* was presented. After a recess of five minutes, the Society listened to an organ solo provided by the music committee, Miss Brown. Under business, it was decided that the A. B. picnic talked of be indefinitely postponed, and that a special programme be prepared for May 21st. Duties for one week: Music, W. M. Wright; essay, F. H. Willard; reading, Abbie Marlatt; discussion, A. M. Green and J. G. Harbord; *Gleaner*, Blanche Thompson. Q.

## Board and Rooms.

No provision for rooms and board is made at the College. The students all find homes in families or in family boarding-houses, at rates varying from \$3.00 to \$4.00 a week for board with furnished room. Lists of boarding-places, with prices and accommodations, can always be had at the President's office, and students are required to notify the President of their rooms when selected.

Lists of rooms for rent without board may also be had by those who wish to board themselves. Directions and advice are gladly given by any of the officers.

## A Good Education Pays.

1. In dollars and cents. All testimony of statistics agrees in showing that educated laborers, of all ranks, have better work and better wages than the uneducated.

2. In influence and position. Careful estimates make it certain that the chances of promotion to places of trust and power among men are almost two hundred times as great to an educated man as to an uneducated.

3. In usefulness. The bulk of good work in the world,—discovery, invention, government, philanthropy and religion,—is brought about by those who learn to think by study.

4. In enjoyment. Our pleasures grow out of what we are ourselves more than from surroundings. A well-trained man sees, hears and handles a great deal more of the world than an untrained one. All things do him good, not so much because he owns them as because he understands them. He always has good things to think about.

## Entering College.

Applicants for admission at the beginning of the year, in September, must be at least fourteen years of age, and able to pass a satisfactory examination in reading, writing, arithmetic including percentage and interest, geography and elements of English grammar. Those applying later in the term must show sufficient advancement to enter the classes already in progress. Every effort should be made to begin with the first of the term, in order to advance with the class from the first.

Applicants of mature age who, for lack of advantages, are unable to pass the full examination may be received on special conditions.

Applicants for advanced standing in the course must pass examination in all the previous studies of the class to be entered; but, if they have pursued such studies in other institutions of similar rank, they may receive credit for their standing in those institutions upon presenting a certificate from the proper officer, showing that their course has been equivalent to that given here.

## Labor.

Every encouragement is given to habits of daily manual labor during the College course. Only the one hour of daily practice in the industrial departments is required; but students are encouraged to make use of other opportunities for adding to their ability and means.

The College employs students, when possible, on the farm and in the gardens, shops and offices, paying wages varying in rate with accomplishment from eight to ten cents an hour.

All labor at the College is under the direction of the Superintendents of the departments, and offers opportunity for increasing skill and efficiency. In regular weekly statements, the students are required to observe business forms and principles, showing from their daily account when and where the work was performed. A few students who have shown especial efficiency are employed during the summer vacation.

The shops and offices are open afternoon and Saturdays for the accommodation of skilled students in work for their own advantage. Everywhere the student who works wins respect; and it is a matter of pride to earn one's way as far as possible.

## Required Industrials.

The need of general training of youth to some degree of dexterity in the every-day work of life, is recognized everywhere now-a-days. In this College, each young man spends time enough in the Carpenter Shop to learn how to use the common tools with ease, and do plain work with some idea of exactness. He also gives hours enough to farm and garden work to have clear notions of what they involve, and interest in the success or failure of varieties and methods. Each finds his critical spirit in such matters strengthened by test of his own abilities and judgment in everyday experience. These occupy one term of each year of the course prior to the fourth.

The young women find a similar provision for their familiarity with every-day affairs in the requirement of one hour a day for one term of the first year, in sewing adapted to their advancement, and in the practice in cooking and dairying required during two terms of the second year. Nimble fingers with the needle may not serve the same purposes as before the sewing-machine snatched the long seams out of the hands of the women; but the ready judgment and taste that make the beauty and comfort of dress are gained only by handling, with careful instruction, the tools that are employed about dress. In the same way, the tact of house-keeping comes by practice under tuition far more readily than under the sharp rap of chagrin and dyspepsia from sour bread, heavy cake and badly-cooked meats.

The required industrials of the course will have served their purpose well in such ways, even if they do not pave the way to skill in these universal arts.

## General Duties and Privileges.

General good conduct, such as becomes men and women anywhere, is expected of all. Every student is encouraged in the formation of sound character by both precept and example, and expected "upon honor" to maintain a good repute. Failure to do so is met by a prompt dismissal. No other rules of personal conduct are announced.

Classes are in session every week-day except Saturdays, and no student may be absent without excuse. Students enrolled in any term cannot honorably leave College before the close of the term, unless excused beforehand by the Faculty. A full and permanent record of attendance, scholarship and deportment shows to each student his standing in the College. After each monthly examination a report of advancement is made to parents; and any student, upon leaving College at the close of a term, may receive a certificate of standing.

Chapel exercises occupy fifteen minutes before the meeting of classes each morning, and unnecessary absence from them is noted in the grades.

Twice in each month the whole body of students gather for a lecture from some member of the Faculty, or for the rhetorical exercises of the third and fourth-year classes. On alternate weeks all the classes meet at the same hour, in separate class-rooms, for exercises in elocution and correct expression.

There are three prosperous literary societies, two of them of many years' standing. All meet weekly, in rooms set apart for their use. The *Alpha Beta* is open to both sexes, and holds its meetings Friday afternoons. The *Webster* and the *Hamilton* admit to membership gentlemen only, and meet on Saturday evening.

The Scientific Club, composed of members of the Faculty and students, meets in the Chemical Laboratory on the first Friday evening of each month.

Every Friday evening a students' prayer meeting is held in a College Society Room, led by a member of the Faculty. On the Sabbath students are expected to attend services at least once in the different churches of the city.

Occasionally during each term the College Hall is opened for a social gathering of faculty and students, in which music, literary exercises and friendly greeting find place.

Public lectures by prominent men of the State are provided from time to time, as opportunity offers. All are free.

The Manhattan Horticultural Society meets monthly, and other farmers' associations occasionally, at the College, and the students have the privilege of attending these meetings.

## MANHATTAN CARDS.

### Manhattan Hotels.

Cottage Hotel, \$1.00 per day.

Commercial House, \$2.00 per day.

### George Firestone.

G Livery, Feed and Sale stable. East end of Poynz Avenue.

### Higinbotham, Stingley & Huntress.

H Merchants, proprietors Blue Valley Mills Manhattan, Kansas.

### Burgoyne's.

Photograph Gallery. Established, 1859. Opposite Purcell's Bank.

### Clothier.

Wm. Knostman, Ready-made Clothing. Hats, Caps, and Gents Furnishing Goods. Opposite postoffice.

### Fox's Book Store.

COLLEGE TEXT-BOOKS, School Stationery, Pencils, Ink, Scratch-books, etc., etc. Manhattan, Kansas.

### Barber Shop and Bath Rooms.

B In basement room opposite Purcell's. This is the place to get a good easy shave, a first-class hair cut, and a good, clean bath. Satisfaction guaranteed. Don't forget the place, but give me a call and be convinced.

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### Allen Bros.

A Opposite the Postoffice, keep a full line of Groceries, Flour, Fruits, Candies, Nuts, etc. Their goods are fresh and first-class, and prices are low and Goods delivered free in any part of the city and on College Hill. We invite all to call, and we will endeavor to give satisfaction.

### Manhattan Bank.

M E. B. Purcell, banker. J. W. Webb, cashier. A general banking business transacted. Bills of Exchange issued on all principal cities and towns of Europe. All collections have personal, faithful and prompt attention of our attorneys. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

### E. B. Purcell.

E. Corner of Poynz Avenue and Second St., has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, &c., &c. Goods delivered in all parts of the city, and at the College, free of charge.

### Kansas Educational Notes.

PROF. J. D. WALTERS.

Miss Gertrude Skene, county superintendent of Barber county, is now Mrs. Gertrude Lane.

Orestes H. St. John, the lecturer on geology, of Washburn College, has donated to that institution his large collection of geological specimens. A valuable addition to the college cabinet is this.

The regular monthly meeting of the Wyandotte County Teachers' Association was held at Argentine on the 17th. There were 75 teachers present. Papers were presented by Miss Eva McNally, Albert Deitz, Burton Short, George Rose, Miss Florence Betton, George Taylor and J. G. Fetig. The ladies of Argentine served a free dinner in the lower rooms of the school building, of which over 150 persons participated.

Those critics of our school system who imagine that a radical revolution in methods of instruction can be created by an act of the Legislature, are requested to note the following from Herbert Spencer: "Like political constitutions, educational systems are not made but grow, and within brief periods growth is insensible."

It is consoling and encouraging to learn from the same author that "the system of domestic government ever gravitates towards the right form." In the same direction, too, school government "ever gravitates," and will at some distant day, perhaps centuries after we poor mortals are under the sod, reach the right form. Let our pessimistic brother take courage. We are gravitating.—*Capital.*

Occasionally the loud pessimistic lament of him who thinks the schools in the halcyon days of yore were better than ours, is heard like the voice of one crying in the wilderness. He would return to the old log school-house, the slab bench, the rules without reason, the dog-eared speller, the unchristian discipline, which made the old time school room a habitation of cruelty. All this and much more of the same sort, this doleful man, looking through the mellowing haze into the remote past, commends to this degenerate age, as the ideal school system. Has our melancholy brother ever read this in an old book, infinitely older than Webster's spellers: "Say not thou, What is the cause that the former days were better than these; for thou dost not inquire wisely concerning this?"—*Supt. McDonald, in Topeka Capital.*

Several series of school readers seem to be based upon the assumption that children have no brains worth mentioning. In the second, third and even the fourth readers the selections are mainly baby talk, adapted to children five or six years old. Certain book-makers would be much surprised and possibly shocked, to learn that children from eight to twelve years old have been known to delight in reading extracts from the English classics, and that they reject with disgust the ridiculous stuff that is forced upon them at school. Likewise in the teaching of arithmetic it is safe to assume that the pupil has some brains. It is not uncommon to see a teacher with six sticks, kernels of corn or other objects, laboriously and elaborately proving to a class of bright children that three and three make six, a fact which every one knew before she could talk. Brethren and sisters, let us begin with the assumption that children have brains.—*Supt. McDonald.*

"I am the heaviest tax-payer in this destrick and ought to have a good deal to say in this matter." Brother, that depends very much on circumstances. If you have carefully and at all times cast your vote and lifted your voice in favor of good school-houses, blackboards, maps, dictionaries, libraries, improvement of grounds, liberal wages to teachers, then you should be allowed to say a great deal in district affairs, and your poorer neighbors should, and probably would, defer very much to your judgment. But if all these years, you have been advocating a parsimonious policy in everything pertaining to your school, if you have opposed the extension of blackboards, the planting of trees, the purchase of needed apparatus, the paying of just wages to your teacher, then you should have no more weight than the poorest citizen in your district, and not nearly as much, if that citizen's soul is broader than yours. If the mere fact of a man's wealth were

to give him a prepondering influence in the affairs of a community, then Jay Gould should have a million votes.—*Supt. John McDonald in Capital.*

The State Board of Education have issued 223 certificates to normal instructors and fifty-five to conductors of normals. There are twenty-nine instructors and sixty-two conductors holding certificates, making 252 instructors and 117 conductors to take care of eighty normal institutes this summer. The following counties have informed the State Superintendent that they have engaged their normal conductor and instructors and agreed upon the place of holding the institute and the time of opening the same:

Allen county, at Iola, opens June 14.

Atchison county, Atchison, opens July 19.

Cherokee county, Columbus, opens July 19.

Chautauqua county, at Sedan, opens June 14.

Doniphan county, at Troy, opens August 2.

Elk county, at Howard, opens August 2.

Finney county, at Garden City, opens July 19.

Franklin county, at Ottawa, July 19.

Greenwood county, Eureka, opens June 14.

Harvey county, at Newton, opens August 2.

Jackson county, at Holton, opens August 2.

Johnson county, at Olathe, opens July 19.

Labette county, at Oswego, opens August 2.

Leavenworth county, at Leavenworth, opens June 14.

Marshall county, Marysville, opens June 14.

McPherson county, at McPherson, opens July 19.

Montgomery county, at Independence, opens August 2.

Mitchell county, at Beloit, opens July 19.

Miami county, at Paola, opens August 2.

Osborne county, at Osborne, opens July 19.

Pottawatomie county, at Westmoreland, opens August 2.

Republic county, at Belleville, opens August 2.

Rooks county, at Stockton, opens August 2.

Sumner county, at Wellington, opens June 14.

Smith county, at Smith Center, opens August 2.

Trego county at WaKeeney, opens July 19.

Wabaunsee county, at Alma, opens July 19.

Wyandotte county, at Wyandotte, opens August 2.

#### Means of Illustration.

Two farms of 171 and 100 acres, for the most part surrounded by durable stone walls, subdivided into fields of variable size to suit the system of management.

A large variety of standard experimental grains in cultivation in fields and experimental plats.

A well-planned barn for grain, hay, horses and cattle; and a piggery of six pens, with separate yards.

Shorthorn, Aberdeen-Angus, Galloway and Jersey cattle; Berkshire, Poland-China, Jersey Red and Essex swine.

Farm implements of improved patterns.

Collections of grains, grasses and forage plants.

Orchards, containing 275 varieties of apples, 80 of peaches, 50 of pears, 16 of plums, 20 of cherries and 10 of apricots.

Small-fruit garden, with 200 varieties of small fruits, including blackberries, raspberries, gooseberries, currants and strawberries; and vineyard with 100 varieties of grapes.

Forest plantation of twelve acres, containing twenty varieties of from ten to fifteen years' growth.

Ornamental grounds, set with a variety of evergreen and deciduous trees. Sample rows, containing 150 varieties of ornamental and useful shrubs and trees, labeled.

Vegetable garden, with hot-beds and cold-frames and experimental beds. Practice rows for students' budding, grafting, cultivating and pruning.

A well-planned and furnished greenhouse of three rooms, stocked with a collection of native and exotic plants.

Chemical laboratory, with eight rooms, fitted with tables and apparatus for a class of eighty students; also, physical apparatus, meteorological instruments, and apparatus for advanced chemical work and assaying.

Models, plaster casts and patterns for drawing, and charts for illustration.

Botanical museum, containing a good herbarium, fairly representing the flora of the United States; a collection of native and foreign woods, seeds, nuts, dry fruits; a collection of abnormal wood growths.

Mineral and geological cabinets, including collections of Professor Mudge; a representative collection of the ores of Colorado, New Mexico and Arizona.

Zoological museum, containing a typical collection of birds and mammals, mounted; a cabinet of bird skins, eggs and nests; a good collection of reptiles and fishes in alcohol; a large series of land, fresh water and marine shells; a good representation of the insects of this locality, and a collection of invertebrates in alcohol.

Mathematical instruments,—compasses, transits, levels, chains, for field work.

Carpenter shop, with separate benches and tools for thirty students in each class, besides lathes, mortising machine, and general chest of tools for fine work.

Shop for iron work, with forges, vises, drill, etc.

Printing office, with twenty-five pairs of cases, a good assortment of body and job type, a Country Babcock press, a quarto jobber, and a paper cutter.

Telegraph office, with six miles of line, connecting thirty-two branch offices, and as many instruments, and a Remington type-writer.

Sewing rooms, with five machines, models and patterns.

Kitchen laboratory, with ranges, cooking utensils, dining-room furnishings, creamery and dairy furniture.

Music rooms, with four pianos, three organs, and other instruments.

A library, carefully selected and catalogued, containing 6,000 volumes. A reading room is maintained in connection with the Library, where may be found on file forty-five of the leading literary, scientific, technical and agricultural periodicals, and several hundred newspapers, including the principal daily and county papers from all parts of the State.

Armory, containing one hundred stand of arms (breach-loading cadet rifles, calibre .45) with accoutrements.

#### Objects.

This College now accomplishes the object of its endowment in several ways.

First, it gives a substantial education to men and women. Such general information and discipline of mind and character as help to make intelligent and useful citizens are offered in all departments, while the students are kept in sympathy with the callings of the people.

Second, it teaches the sciences applied to the various industries of farm, shop and home. Chemistry, botany, entomology, zoölogy and mechanics are made prominent means of education to quick observation and accurate judgment. Careful study of the minerals, plants and animals themselves illustrates and fixes the daily lesson. At the same time, lessons in agriculture and horticulture show the application of science; and both are enforced by actual experiment.

Third, it trains in the elements of the arts themselves, and imparts such skill as to make the hands ready instruments of thoughtful brains. The drill of the shops, gardens, farm and household departments is made a part of a general education to usefulness, and insures a means of living to all who make good use of it. At the same time, it preserves habits of industry and manual exertion, and cultivates a taste for rural and domestic pursuits.

Fourth, it strives to increase our experimental knowledge of agriculture and horticulture. So far as means and circumstances permit, experiments are undertaken with a view to more definite results than ordinary experience can give. By this method the students themselves are trained to a more accurate observation and judgment in these practical tests of principles in farming.

Fifth, it seeks to disseminate such practical truths as have stood the test of scientific inquiry. For this purpose it publishes the *INDUSTRIALIST*; and its officers share in debates and consultations of farmers and horticulturists throughout the State. Each winter a series of six Farmers' Institutes is held in as many different counties of the State. In these the Faculty share with the people in lectures, essays and discussions upon topics of most interest to farmers.

#### Industrial Arts.

*Industrial Arts.*—The training in these departments is designed to be systematic and complete in each, so that any student, following a single line diligently through a whole four-years' course, gains the essentials of a trade and a reasonable degree of skill. Those who wish only a general acquaintance with the arts can take shorter courses in several of them; but all are to select with definite purpose. In the established course, young men are required to take the regular term in the carpenter shop and on the farm and gardens whatever the industrial chosen. Young women are required to take one term in the kitchen laboratory and one in the dairy, though other industrials may occupy their course.

*Dairying.*—During the spring term, daily in instruction and practice in the different branches of dairying is given the ladies of the second year by the Instructor in Household Economy. A dairy, well equipped in modern appliances for the manufacture of butter and cheese, is connected with the Department of Household Economy. Here the regular dairy work is supplemented by a short course of lectures intended to explain the best practices in the art of butter and cheese making, and to give the reason therefor. The following topics cover, in the main, the instruction given the class: Influence affecting the quality and quantity of milk; butter making; the household and factory system of cheese making. Creameries: "deep" and "shallow" setting system; packing and preserving butter.

*Agriculture and Horticulture* are required of young men as industrials during one term of the second year and one term of the third year. In these, practice is made to illustrate and emphasize the teaching, and covers essentially the same ground.

*Carpentry, etc.*—On entering the shops, all take the same first lessons in sawing, planing

and dressing lumber, making mortises, tenons and joints, and in general use and care of tools. Later, one who chooses a trade is provided with work directly in the line chosen; while the farmer's course provides for general training in a great variety of operations, rather for ingenuity than skill. In the full course of a carpenter, special instructions are given in the whole range of work, from framing to stair building. Carpentry is required of young men during one term of the first year.

In iron work, instruction is given in ordinary work,—forging, filing, tempering, etc.

*Printing.*—Two courses are pursued in this art. In one the student is taught the implements or tools employed in typography, and how to use them; composition; imposition; correcting proof; technical terms; presses and their workings; and the general duties of a first-class workman. Everyone is encouraged in studying the rise and progress of printing and related arts. Habits of accuracy and thoroughness are required in order to advancement. The second course of lessons, alternating with those of the first, embraces instruction in spelling, capitalization, syllogization, punctuation, proof-reading, preparation and criticism of essays, and such other work as will make the student accurate and expert in language. Wilson's Punctuation is the text-book; but much of the instruction is oral,—such as grows out of the every-day experience of the office.

Admirable drill is furnished by the INDUSTRIALIST to all, but especially to those who take the full course. The printing which the departments of the College require gives to the advanced student a fair knowledge of the principles and practice of job work.

*Telegraphy.*—The course of training involves for beginners the characters that compose the alphabet, and combinations of these characters into words and sentences—attention being paid to spelling and to short and precise expressions in messages,—abbreviations, signals, forms of messages, train orders, reports etc. To the more advanced is given regular line business, as press reports, messages, cipher messages, and orders in all forms used by prominent telegraph companies, together with the necessary book-keeping, upon exact copies of the blanks in actual use, thus giving the students an understanding of the work of an operator. A portion of the time is devoted to instruction in the management of lines, batteries, instruments, etc. The elementary principles of electricity, magnetism and electro-magnetism, involved in telegraphy, are taught and illustrated by experiments. The more recent inventions related to the art are discussed and explained. Pope's Handbook of the Telegraph is used as a text-book.

*Sewing.*—Young ladies are taught in all ordinary forms of sewing with needle and machine, and in cutting, fitting and trimming dresses and other garments. A straight-line system of cutting and fitting is taught, and systems are furnished to students at wholesale rates. They may furnish materials, and work for their own advantage during the hour of practice, under the direction of the Superintendent.

*Instrumental Music.*—Provision is made for the teaching of music upon instruments of all sorts. A full course upon the organ or piano extends over four years, including harmony and composition; but students may take lessons for a single term if they choose. The College furnishes the instruments for daily practice, but the instruction is paid for at usual rates.

#### General Course of Study.

Each student is expected to take three studies besides one hour's practice in an industrial art; and variation from this rule can be only with consent of the Faculty.

Parallel courses are offered to both sexes with such differences as their necessities seem to call for. The following gives the general scope of the two; but fuller explanations are found in the annual catalogue.

FIRST YEAR.	FALL TERM.	Arithmetic.
	WINTER TERM.	English Analysis. Geometrical Drawing.
SECOND YEAR.	FALL TERM.	Book-keeping, Drawing. English Structure. United States History.
	WINTER TERM.	Algebra. Elementary Composition. Botany.
THIRD YEAR.	FALL TERM.	Algebra completed. Elementary Chemistry. Horticulture. 14 Lectures in Military Science.
	WINTER TERM.	Geometry. Practical Agriculture or Household Economy. Organic Chem. and Mineralogy. 12 Lectures in Military Science.
FOURTH YEAR.	FALL TERM.	Geometry completed, 5 weeks. Drawing, 5 weeks. Entomology. Analytical Chemistry.
	WINTER TERM.	Trigonometry and Surveying. Physiology. General History.
	SPRING TERM.	Mechanics. Agricultural Chemistry. Rhetoric.
	WINTER TERM.	Civil Engineering. Drawing, (or Hygiene). Chemical Physics. English Literature.
	FALL TERM.	Agriculture or Literature. Meteorology. Psychology.
	WINTER TERM.	Logic, Deductive and Inductive Zoology. Structural Botany.
	SPRING TERM.	Geology. United States Constitution. Political Economy.

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## KANSAS STATE AGRICULTURAL COLLEGE.

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### COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner. College Lands and all business connected with their sale are in charge of the Land Agent. Bills against the College should be presented monthly, and, when audited, are paid from the office of the Treasurer, in Manhattan. All Payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. The INDUSTRIALIST may be addressed through Prof. E. M. Shelton, Managing Editor. Subscriptions are received by Supt. Geo. F. Thompson. Donations for the Library or Museums should be sent to the Librarian, or to Prof. Kellerman, chairman of the committee on Museums. Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents. General information concerning the College and its work—studies, examinations, grades, boarding places, etc.—may be obtained at the office of the President or by letter.

### Facts for Laboring Men to Consider.

The time has come when the workingmen of this country must fight for their liberty, for their rights, for their self-respect. Their fight is not with the employers: it is with the idle, the worthless, the vicious, the intemperate, the ignorant of their own number. The industrious, able, sober workingman is today suffering under a tyranny worse than any possible tyranny of capital or monopoly—the tyranny of the trades unions and the so-called labor organizations. There was a time when such associations protected the workingman. That time has gone by. The only workingmen they protect today are the idle and the incompetent. For the sake of these men—a curse to any class—the true workingmen of the country are suffering and have been suffering for years.

All men are not created free and equal. Free they are by the laws of this country and by natural right; but no law can make them equal. The man born without ordinary intelligence, as some men are born, is not the equal of the man born with brains and with the will to use them. The man born with an inherited inclination to vice, the man born to laziness, the man born without ambition—these men are not the equals of the men who get on in the world, and they never can be. They were not created equal, and no trades union can legislate them into equality. We hold these things to be self-evident truths.

They are not, however, self-evident to the men who today organize and control trades unions and labor leagues, and who are trying to make the laborer who is worthy of his hire pay tribute to the laborer who is not. That is precisely what these organizations are doing. If the public knew the whole inside business of trades-unionism and labor-knighthood and the rest of it, there would be such an uprising of indignation as would sweep the whole system out of existence.

We read in the papers that such and such a body of workingmen has struck for higher wages, by command of such and such a union. Popular sympathy is at once aroused in behalf of the underpaid laborer and the benevolent union that has taken charge of his interests. But the public does not know that the union which orders that the workingman's pay shall be so high also orders that it shall be no higher. When the union says to the employer, "You shall pay this man \$2 a day," it likewise says to the man, "You shall not receive more than \$2 a day. If you take 10 cents more from your employer, every man in the place must receive a proportionate increase in his wages, or you must give the 10 cents back. If you do not obey us, we will fine you. If you will not pay the fine, we will turn you out of the union. We will not let you work in a shop where there are union men. If you get work in a non-union shop, we will boycott you; we will boycott your fellow-workmen; we will boycott your employers; we will boycott every man who sells you food or gives you lodging."

That is just what the union says. That is just what the union does, when it can. You do not believe it? You cannot imagine that men could be guilty of such criminal folly? Well, find out for yourself. Go among any set of able, industrious, ambitious workmen, in any trade, and inquire how many of them joined the union willingly, or render it anything but the obedience of abject fear. This is the side of the matter that the public never sees. Only the poor victims know it. In one of the largest printing offices in this city, only a short time ago, the compositors were ordered by their union to strike for lower pay. They were getting more than other men in the union—because they were better skilled and more capable. They refused to obey the order, and they were strong enough, as a body, backed by a brave and just employer, to defy the union.

The union had to yield, in that particular instance. But the union is stronger than any single individual; and where it makes such a demand upon any one man, he is helpless and must submit. And these unions actually do these very things in hundreds of cases—are doing it all the time. And this is the worst evil of trades unions. The boycott business is bad. But it is an extravagant, monstrous, impossible thing that the laws of a free country must crush out sooner or later. This other evil flourishes in secret, and strikes at the laborers' honest ambition and self-respect.

It is a part of such a tyranny as no employer or body of employers ever dared to dream of establishing. Every workingman who wants to do something, to be something in this world—something better than the spy-ridden slave of a secret society—should rise up to fight it. There is no need of general organization for this purpose. Wherever one brave man, or a handful of brave men, stands boldly up and insists upon a man's natural right to make his own price for his labor, to sell it for what he chooses to sell it for, a blow will be struck in the cause of the laboring man's independence. And it rests with the laboring man to work out his own salvation.—*Puck.*

### Cost of Ignorance.

Of all the things that cost in this world, ignorance ranks first. The tax-payer of a city looks at a fine new school-house, and thinks that a costly thing; he is mistaken. Let the teacher enlighten his pupils on this subject, so they will act intelligently when they become men. This country spends eight hundred and fifty millions for rum and eighty-five millions for education. Is this wise? No, it is dense ignorance. Suppose this were reversed, would we not be happier? Who doubts it? It will take years, however, to make the majority of the people of this enlightened land believe this; they are simply ignorant at present.

Slaves were brought to this country because there was a great necessity for laborers to subdue the strong forces of nature. People were ignorant that a great moral law was broken. Time rolled on; the consciences of the people began to be enlightened. Was it right to hold these persons as slaves? The matter was discussed until the state of ignorance that existed gave way. But what a terrible cost that ignorance was to this country! It would have been cheaper to have levied a tax of \$1000 per head for each slave. For, you see, ignorance cannot be cured by a plaster of dollars and cents. As in the liquor traffic, so in the slave traffic,—the oceans of tears shed could not be measured. The nearly three billions of dollars expended in the war is but a small item compared with the mental suffering and the moral degeneracy caused by that conflict.

The result of ignorance of sanitary laws is written all down the ages. When Howard went among the prisons, he found no provisions for the removal of fecal matter; it was deposited in a corner of the cell! Hence, a prisoner, even for debt, was attacked by jail-fever at once on his entrance; only those having a strong constitution lived. If they were allowed to go free, they carried death out with them; people fled from a man just from prison as they would now from one with small-pox.

This is but a sample of the ignorance of people respecting sanitary laws; they live as though there were no such laws. The poor, the soldiers, the sailors, herded in close quarters; the germs of dreadful diseases were thus nursed into life, plagues and pestilence stalked abroad over the earth. In 767, 534, 461, 430 and 188, B. C., terrific plagues prevailed; in Carthage, babes were offered in sacrifice to stay the ravage! From the beginning of the Christian Era to the present time, history gives an account of upwards of seventy great plagues. The "Black

Death" (1340) began in Italy, and spread all over Europe; in London, in the Charter House yard, 200 persons were buried daily. And yet the people of London went on digging wells in the vicinity, and drinking the water from them! Not till it was swept by the great fire of 1666 did infection seem to leave that city.

The people of this earth have paid dear for their ignorance. "The fittest survive;" to live, man must study his surroundings. It is ignorance that costs. Education costs but a fig, compared with ignorance.—*School Journal.*

### Mistakes of Life.

Somebody has condensed the mistakes of life, and arrived at the conclusion that there are fourteen of them. Most people would say, if they told the truth, that there was no limit to the mistakes of life; that they were like the drops in the ocean or the sands of the shore in number, but it is well to be accurate. Here, then, are fourteen great mistakes: "It is a great mistake to set up our own standard of right and wrong, and judge people accordingly; to measure the enjoyment of others by our own; to expect uniformity of opinion in this world; to look for judgment and experience in youth; to endeavor to mould all dispositions alike; to yield to immaterial trifles; to look for perfection in our own actions; to worry ourselves and others with what cannot be remedied; not to alleviate all that needs alleviation as far as lies in our power; not to make allowances for the infirmities of others; to consider everything impossible that we cannot perform; to believe only what our finite minds can grasp; to expect to be able to understand everything."—*Scientific American.*

### Our Exchanges.

One farmer says he saw on his way to town more men husking corn than plowing.—*Concordia Empire.*

The Junction City *Republican* very proudly announces that a dollar against that town or Davis county is as good as a dollar against the Government.

Philip and Frank Breon, of Crystal Plains, shipped eighty-four barrels of oil to Chicago this week. This oil was rendered from hogs which died during the past winter of cholera. Chicagoans are endowed with superior inventive faculties; and if they should purify this very same choleric fat and make choice leaf lard or oleomargarine of it, who could tell the difference?—*Portis Patriot.*

An eight-hour advocate recently described, in coarser and plainer but doubtless in truer language than the philanthropists employ, his reasons for wanting a reduction in hours of labor without a reduction in wages: "I want," he said, "to lay abed longer in the morning and to get my chores done up earlier in the evening, so that I can have an hour more in the saloon."—*Leavenworth Times.*

A Columbus, Kansas, correspondent writing to the *Western Rural*, says: What would you think of a creamery that puts this kind of a note on every door, "Positively no Admittance" and allows no one to go beyond the office, not even those who are selling them cream? That is just the kind of one we have here. They are buying all the butter that has no salt in it that they can get; and, if you will look around the creamery, you will find one to a dozen barrels that look like lard barrels. Madam Rumor says they are from Plankinton & Armour's house, Kansas City, and that they are using from three to six barrels every week of dog grease (I call it that) to mix with their butter, and then sell it as creamery butter. That is where the fraud comes in; and yet there are some that say it is all right, just so they get a little more just now for their cream. Away with such nonsense; and I hope to live to see the day when men will be sent to the penitentiary for adulterating what we eat or drink.

## THE INDUSTRIALIST.

SATURDAY, MAY 8, 1886.

EDITED BY THE FACULTY.  
E. M. SHELTON, MANAGING EDITOR.

### How It Can't be Done.

The man who believes that the torch of the incendiary, the red flag of the commune or the dynamite of the anarchist can destroy the civilization of ages convicts himself of phenomenal idiocy. The man who would level all conditions of society to the plane of the lowest, in the hope that by some mysterious evolution a better state of things will be brought about, makes evident that he has looked to the present evils only. The men who proclaim that the doctrine of the future is "no God, no master, no property, no home," must be fanatics run mad.

It is true that desperate conditions call for desperate relief; but no institution that is the product of honest thought can be so utterly wrong that its only correction is primordial chaos. This lightning age would counsel us to throw away whatever is defective and make something new: but the institutions, the laws, the manners of a people are the outgrowth of its individuality as a nation, and become so much a part of it that while they may be changed, modified or corrected, they cannot be destroyed without national death.

It is becoming very clear to the American people that strikes, lock-outs, boycotts and mobs are not remedial agencies. The old-fashioned conviction is forcing itself upon the political and social world that if you sow corruption, there will spring up crime; if you plant sedition you will gather rebellion; if you scatter mob law, you will harvest mobs; if you sow to the winds of socialism and anarchy, you will reap the whirlwind of destruction and death.

The path of reform does not lie through these things. A failure to accomplish the results nominally aimed at has ever been their history. No question is settled until settled on the basis of right, not force; and in this settlement an ounce of common sense is worth barrels of dynamite. Reforms must be perfected through the careful thought and the honest endeavors of thoughtful honest men. In these times of excitement and tumult, no American citizen can shirk the responsibility of public opinion; he must master his own thoughts, and direct them away from intemperate extremes.

Society has many inequalities and wrongs; but to say that it will be made better by leveling it from the top, is to say that knowledge is not power in the presence of animal passions and brute force. Society must be leveled up, not down.

Capital oppresses labor while sustaining it. This is all wrong. But it is the suicide's solution of the problem to *destroy* capital.

How can these things be settled? I don't know. I do know that a thorough, sound and patriotic education must be given to the masses of men: men must find out that the capital invested in demagogues who live by the sweat of other men's faces, and in breweries and saloons, is just as oppressive to their labor as that invested in railroads and iron works; we must cut off extravagance; we must teach and practice that wealth is not the great desideratum of life; respectability must not be weighed against dollars and cents; it must be made possible for the

poorest of men to live honorably and comfortably.

These questions are upon us, and they will stay with us till a just settlement is reached. It is the duty of every thinking man to grapple with them till he knows not only how it *can't* be done, but how it *can*.—Prof. Olin.

### The Effect of the Past Winter on Some Trees and Shrubs.

The effects of the unusual winter just past is painfully visible in the experimental plantings of trees and shrubs made last spring. The stock consisted largely of seedlings, and young plants two or three years old, comprising a great variety of things untried in Kansas, and mostly purchased of Thomas Meehan. The stock came in good shape, and made generally fair growth during the summer. In a few cases only can a weak summer's growth be considered the cause of the loss. The ground where the plantings were made is a good, mellow, fairly rich eastern slope, running out for the eastern two thirds on nearly flat land. With the exception of a drift upon one part, the ground was nearly bare of snow in the severest weather.

The present state of the plants in these rows is thought worth note, though the small size of the plants and the fact that they had not become fully established, renders the result of the winter less conclusive.

The following-named species are uninjured, and are now leafy to the tips:

*Alnus glutinosa*, European alder.

*Amelanchier Botryp-*

*ium*, Service Tree.

*Andromeda arborea*, Sorrel Tree.

*Betula lutea*, Yellow Birch.

*Betula alba*, Eur. White Birch.

*Caragana arborescens*, Siberian Pea Tree.

*Carpinus americana*, American Hornbeam.

*Cerasus pumila*, Dwarf Wild Cherry.

*Cornus "alba"*, Red twigged Dogwood.

*Cornus Siberica*, Red twigged Dogwood.

*Crataegus coccinea*, Scarlet Thorn.

*Crataegus cordata*, Washington Thorn.

*Euonymus Europaeus*, European Burning Bush.

*Fraxinus sambucifolia*, Black Ash.

*Fraxinus q'drangulata*, Blue Ash.

*Hippocrateum K'lmian'm*, Kalmis Hypericum.

*Ligustrum amurense*, Amoor Privet.

*Ligustrum variegat'm*, Mottled Privet.

*Ligustrum vulgare*, Common Privet.

*Lonicera caprifolium*, Yellow Bush Honeysuckle.

*Lonicera Siberica*, Siberian Bush Honeysuckle.

*Lonicera tartaricum*, Large Flowered Bush Honeysuckle.

*Lonicera xylosteum*, Fly Honeysuckle.

*Prunus verticillata*, Coral Berry.

*Rhamnus catharticus*, Buckthorn.

*Rhamnus lanceolatus*, Buckthorn.

*Rhus aromatica*, Sweet Sumac.

*Rhus Osbecki*, Chinese Sumac.

*Rhus trilobata*, Western Sweet Sumac.

*Salix myricoides*, Myrtle Willow.

*Spiraea sorbifolia*, Sorb-leaved Spiraea

*Spiraea opulifolia*, aurea, Golden Spiraea.

*Symphoricarpus occidentalis*, Western Snowberry.

*Syringa Persica*, Persian Lilac.

*Syringa vulgaris*, Common Lilac.

*Tilia Europaea*, European Linden.

*Ulmus fulva*, Red Elm.

*Ulmus Americana*, White Elm.

*Ulmus racemosa*, Cork Elm.

*Vitis riparia*, River Grape.

*Viburnum opulus*, Snow Ball.

*Viburnum "lantana"*, Snow Ball.

Of those named below the plants were killed back more or less, but are making a good growth and will shortly recover the loss of the winter:

*Acer rubrum*, Red Maple.

*Acer platanoides*, Norway Maple.

*Betula rubra*, Red Birch.

*Betula*, "American White Birch."

\**Cotoneaster obtusa*,

\**Cotoneaster buxifolia*,

\**Cotoneaster Simmondii*,

\**Cercis Japonica*, Japan Red Bud.

*Cornus Florida*, White Dogwood.

*Cornus alternifolia*, Dogwood.

\**Eleagnus parvifolius*, Silver Thorn.

\**Eleagnus longipes*, Silver Thorn.

*Fraxinus Americana*, White Ash.

*Ligustrum buxifolium*, Boxleaved Privet.

*Ligustrum myrtifolium*, Myrtle Privet.

*Rhus cotinus*, Smoke Tree.

*Spiraea semperflorens*, White Spiraea.

\*Those starred were protected by a snowdrift.

The following species were killed to the ground, the roots remaining alive,

and now sending up strong shoots:

*Rhus copallina*, Copal Sumac.

*Rhus typhina*, Staghorn Sumac.

*Actinidia polygama*, Bladder Senna.

*Deutzia gracilis*.

*Ligustrum Japonicum*, Japan Privet.

*Salix annularis*, Curled willow.

*Salix babylonica*, Weeping Willow.

*Fraxinus ornus*, European Ash.

*Spiraea callosa*, White Spiraea.

*Sambucus laciniata*, Cutleaved Elder.

*Phellodendron amurense*, Siberian Cork Tree.

*Cotoneaster frigida*, Siberian Cork Tree.

*Fontanella filariifolia*, Wild Grape.

*Vitis heterophylla*, Frost Grape.

*Vitis cinerea*, Frost Grape.

The Bald Cypress (*Taxodium distichum*) and the European and American Sycamores (*Platanus*) where not protected by snowdrifts are dead throughout. Others dead root and branch are—

*Acer pseudoplatanus*, Sycamore Maple.

*Acer macrophyllum*, Oregon Maple.

*Acer campestre*, European Maple.

*Cercis siliquastrum*, European Red Bud.

*Fraxinus oregonia*, Oregon Ash.

*Fraxinus platycarpa*, Water Ash.

*Hypericum ascyron*, Siberian Hypericum.

*Calliprora purpurea*, Sassafras.

*Laurus Sassafras*, Sassafras.

*Gleditschia monspessulana*, Sassafras.

*Gleditschia monspessulana*, Sassafras.

*sperma*, One seeded Honeylocust.

*Staphylea Bumalda*, Honeylocust.

*Staphylea colchica*, Honeylocust.

*Periploca graeca*, Honeylocust.

*Vitex agnus-castus*, Honeylocust.

*Lespedeza bicolor*, Honeylocust.

*Rhamnus carolinus*, Carolina Buckthorn.

*Vitis cordifolia*, Frost Grape.

*Vitis aestivalis*, Summer Grape.

As a further basis for comparison, it may be stated that, in a similar situation, a large proportion of the one and two-year vines of the common varieties of grapes, mostly Concords, were found to be completely dead. The roots of three and four-year-old pear, apple, and two-year-old cherry trees, in nursery rows, were in many cases dead, while the top remained alive and bright.—Prof. Pope.

### Board and Rooms.

No provision for rooms and board is made at the College. The students all find homes in families or in family boarding-houses, at rates varying from \$3.00 to \$4.00 a week for board with furnished room. Lists of boarding-places, with prices and accommodations, can always be had at the President's office, and students are required to notify the President of their rooms when selected.

Lists of rooms for rent without board may also be had by those who wish to board themselves. Directions and advice are gladly given by any of the officers.

### Labor.

Every encouragement is given to habits of daily manual labor during the College course. Only the one hour of daily practice in the industrial departments is required; but students are encouraged to make use of other opportunities for adding to their ability and means.

The College employs students, when possible, on the farm and in the gardens, shops and offices, paying wages varying in rate with accomplishment from eight to ten cents an hour. All labor at the College is under the direction of the Superintendents of the departments, and offers opportunity for increasing skill and efficiency. In regular weekly statements, the students are required to observe business forms and principles, showing from their daily account when and where the work was performed. A few students who have shown especial efficiency are employed during the summer vacation.

The shops and offices are open afternoon and Saturdays for the accommodation of skilled students in work for their own advantage. Everywhere the student who works wins respect; and it is a matter of pride to earn one's way as far as possible.

### Earnings.

The labor of the students in the industrial departments is principally a part of their education, and is not paid for unless the student is employed—outside of required hours of labor—upon work for the profit of the College. Students are so employed upon the farm, in the gardens or the shops, and about the buildings. The labor is paid for at rates, varying with service rendered, from eight to ten cents an hour. The Superintendents strive to adjust their work to the necessities of students, and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly pay-roll for the past year ranges from \$377 to \$456.

Many students obtain work in the city or upon neighboring farms, and so pay a part of their expenses. Students employed in the shops are allowed to work somewhat for their own profit, in the manufacture of articles for sale and use. In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide for themselves, or from other sources, for the larger part of their expenses. The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education if he has the ability to use his chances well.

## A DICTIONARY GIVEN AWAY.

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A Popular Journal of General Literature.

To the person sending us a subscription to the above-named Magazine for the year of 1886, at \$2.00, we will present a copy of

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# THE INDUSTRIALIST.

SATURDAY, MAY 8, 1886.

## CALENDAR.

1885-86.

FALL TERM.—Sept. 10th to Dec. 18th.  
WINTER TERM.—Jan. 5th to Mar. 26th.  
SPRING TERM.—Mar. 29th to June 9th.  
June 9th, Commencement.

Persons receiving the "Industrialist" need have no fear of bills to come; for the paper always stops with the expiration of subscriptions, unless continued by favor of a friend or of the College.

## BONDS WANTED.

School District bonds issued on College blanks will bring their par value at once. Address T. P. Moore, Holton, Jackson Co., the College Loan Commissioner.

The students' pay-roll for the month of April amounted to \$436.95.

We noticed Mr. Clarence D. Pratt, of the Class of last year, at the College on Wednesday. Clarence is now an industrious cow-puncher, and apparently thrives in the business.

Mrs. Kedzie gave a lecture before the Young People's Union of the Baptist church of Manhattan last evening. An invitation to the public was given, and the church was crowded to overflowing.

Hon. T. D. Thacher, of Topeka, has consented to give the annual Commencement address this year. Mr. Thacher is a good speaker, and one who has something to say. Our annual address will this year be quite up to the high average of previous years.

A letter received by President Fairchild from Prof. Cowles expresses satisfaction with his year's work at Harvard, and a somewhat improved estimate of the general work of undergraduates there. He will spend his summer vacation at Oberlin, O., teaching in the summer school.

Prof. Walters's lecture of yesterday afternoon involved a presentation of the condition of the laboring classes past and present, and a consideration of some of the causes of strikes, and a suggestion of remedies for these and other labor troubles: an interesting subject, which was treated in a most interesting fashion.

Mr. Higinbotham's sale of Shorthorn cattle, on Tuesday, was held in the midst of a steady downpour, which culminated in a roar and rush of waters which soon converted the Fair Grounds, in which the sale was held, into a lake, and obliged the abandonment of the sale. The average price of the fifteen cows and heifers sold was \$114.12, while the thirteen bulls sold brought an average price of \$125.00, as we gather from the *Mercury*.

We acknowledge with pleasure an invitation addressed to ourself and "ladies" to be present at the "Northwest Kansas Editorial Association," to be held at Norton, May 14th. We regret that a pressure of business compels us to decline for ourself and ladies afore mentioned; but especially, we sorrow at the thought that we are forced by cruel circumstances to absent ourself from the "dance," which tops out, as it were, the meeting.

The Farmers' Institute at Ellsworth was found to be too late in the season for best results in numbers and interest; but a good audience gathered to listen to President Fairchild's address Friday evening; and several interesting papers were presented before a small gathering on Saturday afternoon. Farmers generally were too busy to leave their planting, and the townspeople were too much engaged in looking after the thrift of the growing city to stop for discussion of principles of farming. The new enterprise of building a paper city at old Fort Harker, three miles away, under the high-sounding name of Kanapolis, was the town talk, the chief interest centering upon the probable effect of such flaming advertisements upon the prospects of Ellsworth.

Prof. Wm. J. Saunders, of London, Ontario, whose visit to this College last autumn was noticed in these columns, has recently issued a report covering some eighty large pages, in which is given something of the history and work of the agricultural colleges and experiment stations of the United States. The statement of the present condition of these schools and the work that they are doing seems

a model of fairness and judicial impartiality. At the conclusion of a two-and-a-half page reference to the work of our own Agricultural College—nearly or quite the largest space given to any institution—Prof. Saunders refers to the *INDUSTRIALIST* in this wise: "The results of the experimental and other work in all of the departments are given to the public promptly and in a neatly-printed four-page sheet known as the *INDUSTRIALIST*, which is published weekly by the Printing Department of the College."

Not one Kansas farmer in twenty, we are confident, owns a bed of asparagus in good working order. And yet there is no crop on the farm that will give ten per cent of the profits that the asparagus bed yields. The asparagus crop is not affected by dry weather or superfluous moisture; it never fails, indeed, from any cause in Kansas, and, from our experience and observation, it is a perennial of the most pronounced character. (We are now cutting a tremendous growth of asparagus shoots from a "bed" set out about ten years ago.) The attention required by a well-set plantation of asparagus is of the slightest character; the ground about the plants should be spaded up thoroughly each year, and all the manure accessible may be worked in, for this plant is a gross feeder; and if each spring the brine remaining in the otherwise-empty pork barrels be poured upon the asparagus bed, it will flourish in a way that will shame the traditional green bay tree.

In the course of a recent letter to President Fairchild, Senator Plumb refers to the work of the College in a kindly spirit as follows: "I rejoice to know that the Agricultural College is not only doing a good work, but more especially in the line marked out for it in its creation. Recent events enforce most strongly the idea that labor, in order to maintain itself in the field or forum, must be educated. In the contention which is now existing, and which will doubtless continue until a more thorough and permanent adjustment of relative rights and duties is obtained, the agricultural laborer will bear an important part. There can be no final settlement of the great questions at issue that does not include him and his rights. If he secures that to which he is entitled, it will be because of the intelligent judgment with which he presents his case; and I have no doubt your institution will continue to do, as it has heretofore done, its full share in preparing him to make such presentation."

## COLLEGE SOCIETIES.

ALPHA BETA.—Chartered, December 26th, 1870. Meets in the Society Hall every Friday at 2:30 P. M. Ladies admitted. New students cordially invited to attend.

MISS IDA QUINBY, President.

J. W. VANDEVENTER, Secretary.

WEBSTER.—Chartered, January, 1871. Meets in Society Hall every Saturday evening. Visitors, especially students, always welcome,

C. M. BREESE, President.

W. J. BURTIS, Secretary.

SCIENTIFIC CLUB.—Meets on first Friday evening of each month. Composed of members of the Faculty and advanced students. Devoted to the improvement of its members in general scientific knowledge, and the encouragement of original investigations.

PROF. WALTERS, President.

Mrs. KEDZIE, Secretary.

HAMILTON.—Chartered January 29th, 1885. Meets every Saturday evening. Admits gentlemen only. Visitors always welcome.

N. E. LEWIS, President.

A. WALTERS, Secretary.

The Y. M. C. A. meets at 3:30 P. M. Sunday.

D. G. ROBERTSON, President.

C. A. MURPHY, Secretary.

The Y. W. C. A. meets Tuesday afternoon.

NELLIE COTRELL, President.

LORA WATERS, Secretary.

## REPORTS.

SOCIETY HALL, May 1st, 1886.

Society came to order at 8 P. M. with President Breese in the chair. Prayer by I. R. Miller. Debate, question, "*Resolved*, That taxes should not be levied for private purposes." H. W. Aiman and Wm. Knabb succeeded in sustaining the affirmative of the question against the negative, brought forward by D. G. Fairchild and C. M. Beck. Declamations were delivered by E. F. Nichols and M. Hulett. An essay on "The Manufacture of Sugar" was presented by J. W. Randall. L. H. Dixon read an essay, "What is Luck?" Discussions: "The Formation of Coal," G. H. Deibler; "Our National Library," H. W. Avery.

W. J. B.

## SOCIETY HALL, May 7th, 1886.

The Alpha Beta Society was called to order by President Quinby at 2:30 o'clock. A duet was sung by the Misses Quinby, F. Henrietta Willard organist. Maria Hopper offered prayer. Abbie Marlatt read a selection on Spring. The time-honored question, "Should there be a national system of compulsory education?" was discussed by A. M. Green and J. G. Harbord. The judges agreed with Mr. Green that such a system would be "practicable, and could be enforced." A paper on "The American Carlyle—Emerson," by Miss Willard, showed an acquaintance with the work of the sage of Concord, and also considerable partiality for him. The *Gleaner*, short and spicy, was read by Blanche Thompson. And the Society adjourned.

W.

## SOCIETY HALL, May 1st, 1886.

The Hamilton Society came to order at the usual hour with President Lewis in the chair. Roll-call. Prayer was offered by G. W. Waters. J. W. Yeoman was elected and initiated a member of the Society. A. E. Newman read a selection from Edgar A. Poe. The capture of Stony Point was the title of a declamation delivered by G. V. Johnson. S. S. Cobb presented an essay on the Wild Turkey, showing their habits and the method employed in killing them. J. Hammerli delivered a declamation in a masterly manner. The question for debate was, "*Resolved*, That the Irish control American politics." Two of the three judges decided for the negative, presented by E. M. Paddleford and S. L. Ellis, although Messrs. Chase and Myers brought forward some good points in defense of the question. The usual length of time, five minutes, was granted for recess. "The sum of life," was the subject of an oration by G. W. Waters. Three times during the session the Society had the pleasure of listening to music furnished by the celebrated "Wagners Instrumental Quartette." These gentlemen showed by their skill that they were masters of their instruments. The Society hopes to receive another visit from this Quartette ere long. Extemporaneous speaking was participated in by all present with pleasure and profit.

C. A. C.

## A Good Education Pays.

1. In dollars and cents. All testimony of statistics agrees in showing that educated laborers, of all ranks, have better work and better wages than the uneducated.

2. In influence and position. Careful estimates make it certain that the chances of promotion to places of trust and power among men are almost two hundred times as great to an educated man as to an uneducated.

3. In usefulness. The bulk of good work in the world,—discovery, invention, government, philanthropy and religion,—is brought about by those who learn to think by study.

4. In enjoyment. Our pleasures grow out of what we are ourselves more than from surroundings. A well-trained man sees, hears and handles a great deal more of the world than an untrained one. All things do him good, not so much because he owns them as because he understands them. He always has good things to think about.

## Entering College.

Applicants for admission at the beginning of the year, in September, must be at least fourteen years of age, and able to pass a satisfactory examination in reading, writing, arithmetic including percentage and interest, geography and elements of English grammar. Those applying later in the term must show sufficient advancement to enter the classes already in progress. Every effort should be made to begin with the first of the term, in order to advance with the class from the first.

Applicants of mature age who, for lack of advantages, are unable to pass the full examination may be received on special conditions.

Applicants for advanced standing in the course must pass examination in all the previous studies of the class to be entered; but, if they have pursued such studies in other institutions of similar rank, they may receive credit for their standing in those institutions upon presenting a certificate from the proper officer, showing that their course has been equivalent to that given here.

## Required Industrials.

The need of general training of youth to some degree of dexterity in the every-day work of life, is recognized everywhere nowadays. In this College, each young man spends time enough in the Carpenter Shop to learn how to use the common tools with ease, and do plain work with some idea of exactness. He also gives hours enough to farm and garden work to have clear notions of what they involve, and interest in the success or failure of varieties and methods. Each finds his critical spirit in such matters strengthened by test of his own abilities and judgment in everyday experience. These occupy one term of each year of the course prior to the fourth.

The young women find a similar provision for their familiarity with every-day affairs in the requirement of one hour a day for one term of the first year, in sewing adapted to their advancement, and in the practice in cooking and dairying required during two terms of the second year. Nimble fingers with the needle may not serve the same purposes as before the sewing-machine snatched the long seams out of the hands of the women; but the ready judgment and taste that make the beauty and comfort of dress are gained only by handling, with careful instruction, the tools that are employed about dress. In the same way, the tact of house-keeping comes by practice under tuition far more readily than under the sharp raps of chagrin and dyspepsia from sour bread, heavy cake and badly-cooked meats.

The required industrials of the course will have served their purpose well in such ways, even if they do not pave the way to skill in these universal arts.

## Expenses.

Tuition is free, and no general fee for incidental or contingent expenses is charged. In a few special departments of instruction, the following payments are made in advance to the Secretary:

In analytical chemistry, the students pay \$3 a term for the chemicals and apparatus used in their laboratory practice and analysis. In the printing office, young men, in their first year, pay \$3 a term for office expenses. Advanced students have the use of the office for the work performed during the industrial hours.

In telegraphy young men pay \$3 a term for office expenses.

Young women are furnished both printing and telegraphy free of expense, these two offices, with the Sewing and Cooking Departments, being provided especially for their industrial training.

Lessons in instrumental music, two a week, are from \$10 to \$14 per term, according to its length; one a week, \$6 to \$8.40. One half is to be paid to the instructor in charge with the first lesson, the other half at the middle of the term.

The cost of text-books at the book-store is, for the first year about \$4 a term; for the second year, \$2.75; for the third year, \$7.50; and for the fourth year, \$5.50.

Board and washing are not furnished by the College. Board, with furnished room, can be procured in private families at from \$2.75 to \$4 per week. Some students board themselves at even less cost, and rooms for the purpose can be obtained at a rent of from \$1 to \$2.50 a month. Washing costs from \$0.50 to \$1 a dozen pieces.

Ordinary expenditures, aside from clothing and traveling expenses, range from \$100 to \$200 a year.

## MANHATTAN CARDS.

### Manhattan Hotels.

Cottage Hotel, \$1.00 per day.

Commercial House, \$2.00 per day.

### George Firestone.

G. Livery, Feed and Stable. East end of Poyntz Avenue.

### Burgoyne's.

B. Photograph Gallery. Established, 1859. Opposite Purcell's Bank.

### Clothier.

C. Wm. Knostman, Ready-made Clothing, Hats, Caps, and Gents Furnishing Goods. Opposite postoffice.

### Fox's Book Store.

COLLEGE TEXT-BOOKS, School Stationery, Pencils, Ink, Scratch-books, etc., etc. Manhattan, Kansas.

### Barber Shop and Bath Rooms.

B. In basement room opposite Purcell's. This is the place to get a good easy shave, a first-class hair cut, and a good, clean bath. Satisfaction guaranteed. Don't forget the place, but give me a call and be convinced.

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A. Opposite the Postoffice, keep a full line of Groceries, Flour, Fruits, Candies, Nuts, etc. Their goods are fresh and first-class, and prices are low and Goods delivered free in any part of the city and on College Hill. We invite all to call, and we will endeavor to give satisfaction.

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E. B. Purcell, banker. J. W. Webb, cashier. A general banking business transacted. Bills of Exchange issued on all principal cities and towns of Europe. All collections have personal, faithful and prompt attention of our attorneys. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

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E. Corner of Poyntz Avenue and Second St., has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, &c., &c., &c. Goods delivered in all parts of the city, and at the College, free of charge.

### Kansas Educational Notes.

PROF. J. D. WALTERS.

Frankfort has added 150 volumes to her school library.

The Manhattan singers and musicians will perform "Belshazzar" next week.

Bird City, Cheyenne county, is to have a college, to be managed under the auspices of the M. E. Church.

A boy named Willis Myers, of Graham county, was accidentally shot and killed by his playmate. Common occurrence this.

Within the past year 284 quarters of school land have been added to the tax rolls of Decatur county. This is a total of 45,440 acres.

The college of the Church of Christ has not been located as yet. Rev. Thomson, of Manhattan, the President of the college committee, will receive bids from favorably-located towns, for the institution.

Last Saturday being the closing day of the schools of Rossville, the parents surprised the teachers by setting tables in the school yard, and inviting the entire school and town population to dinner. They had a grand good old time.

The masonry on the Kansas Wesleyan University is rapidly progressing upward; and if the good weather continues, it will not be long until the work of enclosing will take place. The laying of the corner-stone occurs May 6th. Bishop Ninde delivers the address. Gov. Martin is expected to be present on the occasion. This event will be of considerable importance to our city.—*Salina Republican*.

A special to the *Commonwealth* from Dodge City, Kan., says startling facts have lately been uncovered here, involving high county officials and others in great alleged crookedness as to school lands in this county. Civil suits have been instituted, and criminal prosecutions are impending. Some of the "swag" has been returned. The lands of the State are sure to be recovered, and general consternation prevails among those interested. The steps taken for the plunder have been bold in plan and execution. The county superintendent is on the war path, the State has been notified, and something may drop.

The following is the list of commissions of the Kansas Academy of Science, for the present year: Anthropology, A. H. Thompson, Frank Kizer, J. R. Mead; Astronomy, T. H. Dinsmore, E. B. Cowgill, W. S. Franklin; Botany, W. A. Kellerman, J. H. Carruth, E. N. Plank; Chemistry, G. H. Failyer, E. H. S. Baily, J. T. Willard; Entomology, E. A. Popenoë, F. H. Snow, Warren Knous; Geology, Robert Hay, Joseph Savage, E. P. West; Herpetology, F. W. Cragin, I. D. Graham, L. L. Dyche; Ichthyology, I. D. Graham, F. H. Snow, F. W. Cragin; Mathematics, W. S. Franklin, D. E. Lantz, B. B. Smyth; Meteorology, F. H. Snow, J. T. Lovewell, J. D. Parker; Mineralogy, E. H. S. Baily, Geo. S. Chase, J. C. Cooper; Ornithology, N. S. Goss, L. L. Dyche, D. E. Lantz; Pharmacy, L. E. Sayre, R. J. Brown, E. H. S. Baily; Physics, J. T. Lovewell, E. B. Cowgill, W. S. Franklin. The failure of most of the Academy's commissions to report at recent meetings has rendered such appointments a matter of form. It is greatly desired that all commissions should report at the Emporia meeting. If each report were to consist of the results of one special investigation undertaken by the commission, a new feature of great interest and scientific value would thereby be added to the work of the Kansas Academy.—*From a circular letter by the Academy*.

### Does the College Educate?

This question is frequently asked of late; and the true answer depends upon what is meant by education. He who has the correct idea of what is to take a boy, untrained, untutored, rough and wild, and transform him into the man,—be he business man, professional man or society man,—knows what is bound up in the meaning of the word *educate*. This man must differ from the boy as a trained family-horse or leader in a stage-coach team differs from the wild colt or Mexico mustang which has never been tamed to "bit and bridle." Education is not the acquisition of knowledge; although to acquire, to come to know, to obtain information, comes in as a part

and parcel of any true system of education.

Few questions of such tremendous importance are so grossly misunderstood by the community as this. There are men by the scores and hundreds in every large town or city who are tolerably intelligent upon general matters, but who fail utterly to grasp the idea of what is meant by an education, or what a high school or college does for a boy. To such we commend a careful study of Principal Hoyt's valuable article in the last number of *Education*, showing by hard facts and figures what the public high school of the city of Providence has done for that city during the last generation. If they have acquired the power of "drawing an inference," they will possibly get some light from it. We

would also commend to them that unique contribution to the first number of *The Forum*, by Edward Everett Hale, entitled "How I was Educated." He says: "I ought to say, that I do not believe that any life outside of a college has yet been found that will in general do so much for a man in helping him for this business of living. I could get more information out of *Chambers's Encyclopædia*, which you can buy for ten dollars, than any man will acquire, as facts, by spending four years in any college. But the business of changing a boy into a man, or, if you please, of changing an unlicked cub into a well-trained gentleman, is, on the whole, more simple and certainly done in a good college than anywhere else. 'So,' as Nestor says, 'it seems to me.'"—*Education*.

#### Means of Illustration.

Two farms of 171 and 100 acres, for the most part surrounded by durable stone walls, subdivided into fields of variable size to suit the system of management.

A large variety of standard experimental grains in cultivation in fields and experimental plots.

A well-planned barn for grain, hay, horses and cattle; and a piggery of six pens, with separate yards.

Shorthorn, Aberdeen-Angus, Galloway and Jersey cattle; Berkshire, Poland-China, Jersey Red and Essex swine.

Farm implements of improved patterns.

Collections of grains, grasses and forage plants.

Orchards, containing 275 varieties of apples, 80 of peaches, 50 of pears, 16 of plums, 20 of cherries and 10 of apricots.

Small-fruit garden, with 200 varieties of small fruits, including blackberries, raspberries, gooseberries, currants and strawberries; and vineyard with 100 varieties of grapes.

Forest plantation of twelve acres, containing twenty varieties of from ten to fifteen years' growth.

Ornamental grounds, set with a variety of evergreen and deciduous trees. Sample rows, containing 150 varieties of ornamental and useful shrubs and trees, labeled.

Vegetable garden, with hot-beds and cold-frames and experimental beds. Practice rows for students' budding, grafting, cultivating and pruning.

A well-planned and furnished greenhouse of three rooms, stocked with a collection of native and exotic plants.

Chemical laboratory, with eight rooms, fitted with tables and apparatus for a class of eighty students; also, physical apparatus, meteorological instruments, and apparatus for advanced chemical work and assaying.

Models, plaster casts and patterns for drawing, and charts for illustration.

Botanical museum, containing a good herbarium, fairly representing the flora of the United States; a collection of native and foreign woods, seeds, nuts, dry fruits; a collection of abnormal wood growths.

Mineral and geological cabinets, including collections of Professor Mudge; a representative collection of the ores of Colorado, New Mexico and Arizona.

Zoological museum, containing a typical collection of birds and mammals, mounted; a cabinet of bird skins, eggs and nests; a good collection of reptiles and fishes in alcohol; a large series of land, fresh water and marine shells; a good representation of the insects of this locality, and a collection of invertebrates in alcohol.

Mathematical instruments,—compasses, transits, levels, chains, for field work.

Carpenter shop, with separate benches and tools for thirty students in each class, besides lathes, mortising machine, and general chest of tools for fine work.

Shop for iron work, with forges, vises, drill, etc.

Printing office, with twenty-five pairs of cases, a good assortment of body and job type, a Country Babcock press, a quarto jobber, and a paper cutter.

Telegraph office, with six miles of line, connecting thirty-two branch offices, and as many instruments, and a Remington type-writer.

Sewing rooms, with five machines, models and patterns.

Kitchen laboratory, with ranges, cooking utensils, dining-room furnishings, creamery and dairy furniture.

Musical rooms, with four pianos, three organs, and other instruments.

A library, carefully selected and catalogued, containing 6,000 volumes. A reading room is maintained in connection with the Library, where may be found on file forty-five of the leading literary, scientific, technical and agricultural periodicals, and several hundred newspapers, including the principal daily and county papers from all parts of the State.

Armory, containing one hundred stand of arms (breach-loading cadet rifles, calibre .45) with accoutrements.

#### Objects.

This College now accomplishes the object of its endowment in several ways.

First, it gives a substantial education to men and women. Such general information and discipline of mind and character as help to make intelligent and useful citizens are offered in all departments, while the students are kept in sympathy with the callings of the people.

Second, it teaches the sciences applied to the various industries of farm, shop and home. Chemistry, botany, entomology, zoölogy and mechanics are made prominent means of education to quick observation and accurate judgment. Careful study of the minerals, plants and animals themselves illustrates and fixes the daily lesson. At the same time, lessons in agriculture and horticulture show the application of science; and both are enforced by actual experiment.

Third, it trains in the elements of the arts themselves, and imparts such skill as to make the hands ready instruments of thoughtful brains. The drill of the shops, gardens, farm and household departments is made a part of a general education to usefulness, and insures a means of living to all who make good use of it. At the same time, it preserves habits of industry and manual exertion, and cultivates a taste for rural and domestic pursuits.

Fourth, it strives to increase our experimental knowledge of agriculture and horticulture. So far as means and circumstances permit, experiments are undertaken with a view to more definite results than ordinary experience can give. By this method the students themselves are trained to a more accurate observation and judgment in these practical tests of principles in farming.

Fifth, it seeks to disseminate such practical truths as have stood the test of scientific inquiry. For this purpose it publishes the *INDUSTRIALIST*; and its officers share in debates and consultations of farmers and horticulturists throughout the State. Each winter a series of six Farmers' Institutes is held in as many different counties of the State. In these the Faculty share with the people in lectures, essays and discussions upon topics of most interest to farmers.

#### Industrial Arts.

*Industrial Arts.*—The training in these departments is designed to be systematic and complete in each, so that any student, following a single line diligently through a whole four-years' course, gains the essentials of a trade and a reasonable degree of skill. Those who wish only a general acquaintance with the arts can take shorter courses in several of them; but all are to select with definite purpose. In the established course, young men are required to take the regular term in the carpenter shop and on the farm and gardens whatever the industrial chosen. Young women are required to take one term in the kitchen laboratory and one in the dairy, though other industrials may occupy their course.

*Dairying.*—During the spring term, daily instruction and practice in the different branches of dairying is given the ladies of the second year by the Instructor in Household Economy. A dairy, well equipped in modern appliances for the manufacture of butter and cheese, is connected with the Department of Household Economy. Here the regular dairy work is supplemented by a short course of lectures intended to explain the best practices in the art of butter and cheese making, and to give the reason therefor. The following topics cover, in the main, the instruction given the class: Influence affecting the quality and quantity of milk; butter making; the household and factory system of cheese making. Creameries: "deep" and "shallow" setting system; packing and preserving butter.

*Agriculture and Horticulture* are required of young men as industrials during one term of the second year and one term of the third year. In these, practice is made to illustrate and emphasize the teaching, and covers essentially the same ground.

*Carpentry, etc.*—On entering the shops, all take the same first lessons in sawing, planing and dressing lumber, making mortises, tenons

and joints, and in general use and care of tools. Later, one who chooses a trade is provided with work directly in the line chosen; while the farmer's course provides for general training in a great variety of operations, rather for ingenuity than skill. In the full course of a carpenter, special instructions are given in the whole range of work, from framing to stair building. Carpentry is required of young men during one term of the first year.

In iron work, instruction is given in ordinary work, —forging, filing, tempering, etc.

*Printing.*—Two courses are pursued in this art. In one the student is taught the implements or tools employed in typography, and how to use them; composition; imposition; correcting proof; technical terms; presses and their workings; and the general duties of a first-class workman. Everyone is encouraged in studying the rise and progress of printing and related arts. Habits of accuracy and thoroughness are required in order to advancement. The second course of lessons, alternating with those of the first, embraces instruction in spelling, capitalization, syllabication, punctuation, proof-reading, preparation and criticism of essays, and such other work as will make the student accurate and expert in language. Wilson's Punctuation is the text-book; but much of the instruction is oral,—such as grows out of the every-day experience of the office.

Admirable drill is furnished by the *INDUSTRIALIST* to all, but especially to those who take the full course. The printing which the departments of the College require gives to the advanced student a fair knowledge of the principles and practice of job work.

*Telegraphy.*—The course of training involves for beginners the characters that compose the alphabet, and combinations of these characters into words and sentences—attention being paid to spelling and to short and precise expressions in messages,—abbreviations, signals, forms of messages, train orders, reports etc. To the more advanced is given regular line business, as press reports, messages, cipher messages, and orders in all forms used by prominent telegraph companies, together with the necessary book-keeping, upon exact copies of the blanks in actual use, thus giving the students an understanding of the work of an operator. A portion of the time is devoted to instruction in the management of lines, batteries, instruments, etc. The elementary principles of electricity, magnetism and electro-magnetism, involved in telegraphy, are taught and illustrated by experiments. The more recent inventions related to the art are discussed and explained. Pope's Handbook of the telegraph is used as a text-book.

*Sewing.*—Young ladies are taught in all ordinary forms of sewing with needle and machine, and in cutting, fitting and trimming dresses and other garments. A straight-line system of cutting and fitting is taught, and systems are furnished to students at wholesale rates. They may furnish materials, and work for their own advantage during the hour of practice, under the direction of the Superintendent.

*Instrumental Music.*—Provision is made for the teaching of music upon instruments of all sorts. A full course upon the organ or piano extends over four years, including harmony and composition; but students may take lessons for a single term if they choose. The College furnishes the instruments for daily practice, but the instruction is paid for at usual rates.

#### General Course of Study.

Each student is expected to take three studies besides one hour's practice in an industrial art; and variation from this rule can be only with consent of the Faculty.

Parallel courses are offered to both sexes with such differences as their necessities seem to call for. The following gives the general scope of the two; but fuller explanations are found in the annual catalogue.

FIRST YEAR.		
	FALL TERM.	WINTER TERM.
	Arithmetic.	English Analysis.
	Geometrical Drawing.	
	Book-keeping, Drawing.	English Structure.
		United States History.
	Algebra.	Algebra completed.
	English Composition.	Elementary Chemistry.
	Botany.	Horticulture.
		14 Lectures in Military Science.
SECOND YEAR.		
WINTER TERM.	FALL TERM.	Geometry.
		Practical Agriculture or Household Economy.
SPRING TERM.	FALL TERM.	Organic Chem. and Mineralogy.
		12 Lectures in Military Science.
THIRD YEAR.		
	SPRING TERM.	Geometry completed, 5 weeks.
FOURTH YEAR.	FALL TERM.	Drawing, 5 weeks.
		Entomology.
		Analytical Chemistry.
		Trigonometry and Surveying.
	FALL TERM.	Physiology.
		General History.
	WINTER TERM.	Mechanics.
		Agricultural Chemistry.
	SPRING TERM.	Rhetoric.
		Civil Engineering.
		Drawing, (or Hygiene).
		Chemical Physics.
		English Literature.
		Agriculture or Literature.
	FALL TERM.	Meteorology.
		Psychology.
	WINTER TERM.	Logic, Deductive and Inductive Zoology.
		Structural Botany.
	SPRING TERM.	Geology.
		United States Constitution.
		Political Economy.

# THE INDUSTRIALIST.

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## KANSAS STATE AGRICULTURAL COLLEGE.

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### COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

College Lands and all business connected with their sale are in charge of the Land Agent.

Bills against the College should be presented monthly, and, when audited, are paid from the office of the Treasurer, in Manhattan.

All Payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka.

The INDUSTRIALIST may be addressed through Prof. E. M. Shelton, Managing Editor. Subscriptions are received by Supt. Geo. F. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Kellerman, chairman of the committee on Museums.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding places, etc.,—may be obtained at the office of the President or by letter.

### Feeding the Horse.

Secretary Russell is delivering a lecture on "The Horse" to Massachusetts farmers, which ought to be heard by many farmers outside that commonwealth. Here is an extract from a report of the lecture at Salem as found in the *Mirror and Farmer*:

"We generally overfeed all our domestic animals, and the horse is no exception. The horse is a good deal like man, and for one thing he's a glutton; he will eat more than is good for him, and, as most men feed too heavy, he generally has a chance to. The horse has a very small stomach for so large an animal, the one largest ever measured holding but sixteen quarts, and that of the average horse holding twelve or thirteen quarts; which is very readily filled and rapidly digested, and so the question is not only how much to feed, but how often to feed it. Now, I know that there are many horses that are fed only in the morning and at night, and they have their counterparts among men in the bankers and merchants who breakfast early and dine late, working hard meanwhile at their business, and the first you hear they drop out from paralysis, apoplexy or something of the kind. And so with the horses: they are working on their nervous force, and after two or three years they begin to fail a little; they are not quite what they were, and their owner begins to think he must 'put 'em off.' They don't just suit him, aren't quite what he wants, and he 'puts 'em off' onto somebody else, and when twelve to fifteen years old, instead of being in their prime, they are played out or dead; when if properly cared for they should be good for nearly twice that number of years. To save their power as long as we can, we must feed in accordance with their anatomical construction, and that means feed three times daily and one of those three feeds to be given in the middle of the day. Now as to how much: we can come as near to a rigid rule with the horse as with any animal we care for, but still we must use some judgment. The ordinary horse requires 2 per cent of his weight per day of hay and grain; that is, a horse of 1000 pounds weight requires twenty pounds of hay and grain per day, and that amount may best consist of ten pounds each. A great many horses are worn out by feeding them too much. I remember a jolly old gentleman who always 'liked to feed all his critters well' and who generally ate too much himself. He bought a young Western horse, and, as he was driving by, stopped and asked me what I thought of his new beast. 'Why,' said I, 'he is a mighty fine one.' Well, a few months later he drove my way again and asked me to look at his horse and tell him what the matter was. I looked, and asked him what he had done to him, 'for,' said I, 'he don't look like the same horse; he looks like a poor relation; he's only a skin with precious little stuffing; he must have been got by a saw-horse out of a nightmare; what have you been feeding him?' 'Why,' said he, 'I have fed him enough; he's had all the hay he would eat and twelve quarts of meal a day.' 'Well,' I answered, 'that's not a horse anyway, but a manure machine, and you have been working it too hard; cut him down easy to six, or, better, to eight quarts of oats and ten pounds of hay.' He did so, and his horse was soon all right again. Most horses will eat more than is good for them if they have a chance to get all they want, and this is especially true of the old horses; they will also often eat too fast, same as their masters. I have a way of curing a horse of bolting its feed that is worth patenting. I had a four-year-old filly of great promise, that I was expecting to get \$500 or \$600 for, that began to run down badly without any apparent cause; her hair looked rough and harsh as though off her feed or out of condition; and a horse's hair shows the condition as plain as does

a man's countenance. I watched her eating, and found that she ate her oats in one half the time that the others took for theirs, and ate them all before touching her hay, while the others would take first a mouthful of oats and then a bite of hay. I said 'I'll see about that,' and went out in the yard and picked up a handful of pebbles about half as big as your fist, and put them in her crib with her oats the next time she was fed. It was great fun to hear her rattle those stones around, and it took her about an hour to eat her oats; but under this treatment she improved so much that I soon got a large price for her, and after she was sold gave her purchaser the recipe for keeping her in good condition. A horse will eat dry meal slower than wet. The most economical feed for the working team is, doubtless, wet cut feed, meal and hay; but I would have more or less oats, which can be ground with the meal. Corn is not the natural food of the horse; he is not a corn-eating animal. Corn is too heating and too fattening to produce strong sinews and hard muscle; but, after all, you can raise a pretty good horse on corn."

### The Annual Exodus to Europe.

Already the great steamers that compose the transatlantic ferry are beginning to be crowded with the vast throng of tourists that annually pour out from this continent and overrun Europe. All true patriots never fail to point out to their countrymen and women that it is their duty to see the sights of their own fair land before visiting the effete monarchies of Europe. Nevertheless there are thousands living in eastern cities, New York for example, who have never seen any of the country west of the Hudson, and all beyond that noble stream is *terra incognita* to them, possibly inhabited by Indians and buffaloes. But the fact is, a European tour is not only cheaper, but can be accomplished with greater comfort and comparative luxury than a trip through the West. It is a mistaken idea that only the rich can enjoy a trip to the other side.

An average worker who can save up \$200 or \$300 can cross the ocean and return, saloon passage, and enjoy a run through England, Ireland and Scotland, with perhaps a week in Paris; and added to this is gained the benefits to be derived from the ocean voyage.

The reason for this annual exodus to Europe in preference to the boundless American continent, is simply due to the fact that more can be got for the money expended.

If railroad traveling were cheaper, this would be different, as was proved by the immense amount of travel during the recent transcontinental railroad war.—*Leavenworth Times*.

### The Hat and Hair in Health.

Dr. Dio Lewis says that the beard about the mouth and nose saves the lungs. The back of the neck should be protected in cold weather. The hair alone can do this perfectly. The present practice of shingling off the hair at the back of the head may be fashionable, but it is unphysiological. Eight men suffer from catarrh where one woman has the disease. Men keep their heads in a sensitive condition from the moisture and heat of the hat. A woman's hair is an abundant protection. A man thinks he must always have his hat on while out in the air. There are a few professions where a bald head is desirable, but a remarkable small percentage of men ever get into them. Most of the bald heads in the country might be used as tombstones to chronicle a murder by the fashionable hat. To copy from Shakespeare, we might say, "strange that man should put that upon his head which steals away his hair." The difference between the temperature under the hat and in an ordinary room is about enough to give a weak man a cold. The hair below the hat is

seldom lost. It is natural to suppose that if we keep the hair under the hat nearer the conditions, as regards heat and moisture, to that below it, the growth will be stronger. Ventilation should be applied by means of holes punched through the sides and top of the hat. There is not half the danger in keeping the head cool that there is in keeping it hot. We never could see how the modern stiff hat ever came to be made so extensively. It is cold and clumsy, and simply murders the hair.—*Rural New-Yorker*.

A KANSAS CANAL.—Travelers to Colorado via the Santa Fe road have noticed for the past two or three years a very large force of men and teams engaged in making a canal in the vicinity of Cimarron and farther west. It is now completed, and the water will be turned into it in a few days. The canal is forty feet in width at the bottom, six feet in depth, and seventy miles in length. It has cost three fourths of a million dollars, and was built by A. T. Soule, the Hop Bitters man, of Rochester, N. Y. The purpose it is designed for is to irrigate and reclaim the arid region around Spearville in Ford county. Whether it succeeds or not, depends on the water supply. The Arkansas sinks out of sight frequently in Western Kansas, and unless some system of submerged dam can be devised to check this underflow and bring the water to the surface, the enterprise will be a failure.—*Minneapolis Messenger*.

### Our Exchanges.

Ten immigrant wagons, in one train, passed through Monday en route for Thomas county, from Washington county, this State.—*Norton Courier*.

A Crawford county man hatched seven chickens out of an incubator in which he had placed 387 eggs. Not discouraged by this failure, however; he will try it again.

A convention of broom-corn growers is to be held at Lindsborg on Monday the 13th inst. The call sets forth that broom-corn buyers have commenced to lay their plans for the year's purchase, and it is proposed to meet to arrange for protection against the sharpers.

Thos. Stratton, of this county, observed Arbor Day by planting 11,000 trees with his own hands on his timber-culture claim in Hitchcock township. They were two-year-old Russian mulberries, and were put four feet apart each way. He began at 6 A. M. and quit at 6 P. M., with a rest of an hour and a half at noon. A pretty good day's work, but it will be attested by good witnesses. Before anybody pronounces the story a fraud, it is well to explain that Mr. Stratton is the inventor of a tree-planter. He drove a team hitched to the machine, riding along at his leisure, and putting the trees into the ground in excellent shape and with a precision that hand planting cannot rival.—*Lincoln Journal*.

Peter Rote is a farmer in a small way. He lives at the edge of the city, and owns but three acres of ground. He has that well improved, keeps a cow, raises a \$25 calf and \$100 worth of hogs every year, has a rye pasture, 100 fruit trees, a nice little home, and money loaned out—all in four years. He loaned a farmer money last year to pay taxes on 160 acres, which the borrower had "under cultivation." Peter is a worker. He makes and saves; cuts his garments according to his cloth; allows nothing to waste; feeds his stock, and shelters it from storm, and is getting rich. An ambition to own a great big farm has made many a man poor in this county. There is more glory in owning a three-acre lot unincumbered than a whole section of land knee deep under mortgage. Peter Rote's head is eminently level. Wish we had more Peter Rotes.—*Clay Center Dispatch*.

## THE INDUSTRIALIST.

SATURDAY, MAY 15, 1886.

EDITED BY THE FACULTY.  
E. M. SHELTON, MANAGING EDITOR.

### Bird Migration.

There is no phenomenon connected with the return of spring more interesting than that of the return of the birds. To one who has carefully noted their arrival for a series of years, the advance of the season becomes a sort of calendar of the re-appearance of this or that species, until the entire list is complete and our summer friends are all making melody in our midst.

One of the greatest peculiarities to be noticed is the regularity with which some of the species arrive from year to year. The brown thrasher, for instance, is due at Manhattan regularly about April 15th. On April 14th of the present season, I searched diligently, but in vain, for it in favorable localities, but on the morning of the 15th it was singing loudly from the top of an apple tree.

Other species are exceedingly irregular in the time of their appearance, this being usually dependent on the state of the weather. This is particularly true of the mocking bird. In the spring of 1883 it was first seen on April 11th, two days earlier than the arrival of the brown thrasher for that season; but in 1884 it was not observed until May 17th, and then but few of the species summered here. It will be remembered that the spring of 1884 was cold and wet during the greater part of April and May.

In the Eastern States the coming of the bluebird is usually looked upon as the harbinger of spring; but it is not so in Kansas. Both the bluebird and the robin winter here in large numbers. They may be found in sheltered places in the coldest weather, and will come about our buildings at every indication of a thaw. Knowing this, it is rather amusing to notice in so many of our Kansas papers, about March 1st of every year, the startling announcement that spring has come because the bluebirds are here; when the same bluebirds have not been a mile away from that same locality during all the cold weather of January and February. The mistake occurs through supposing that the bluebird conducts itself after the same manner here as elsewhere. Observation teaches us much.—*Prof. Lantz.*

### Little Things.

"Despise not the day of small things" and "Mony a mickle makes a muckle" are aphorisms often quoted and yet too often disregarded. It is the little things of life that really include the great. The same forces operate in a drop of water as in the great ocean. In the formation of character and habit, the influence of these little things should never be overlooked; but in the practical affairs of life it is doubtful whether this disregard of trifles is always so important as many worthy people would have us think. Picking up sticks is profitable only when sticks will sell and one can find plenty of them. The Frenchman who became wealthy by picking up crusts of bread on the streets of Paris, drying them and selling them for bird food, could not have amassed a fortune had there been much competition in the business. The old men and women who go about our large cities hooking bits of rags and coal from ash barrels and from among the garbage of the streets are often possessed of considerable wealth

gained by their persistent efforts. That the accumulation of many little things leads to such solid prosperity, should act as a wholesome restraint upon those who are disposed to squander their little opportunities and spare moments. It is undoubtedly always desirable to save both time and material in doing any work.

On the other hand, there is danger of overdoing our devotion to little things. History tells us of the Philadelphia merchant who used to make out all his bills on bits of brown wrapping paper or any other scraps. He wrote his letters with a pencil on similar material. Although he amassed an immense fortune, he was everywhere despised as a miser. We are often told how a Stephen Girard or an A. T. Stewart or other rich man made a substantial start in life by attending to little things, such as untying instead of cutting all strings, or making straight the crooked nails from old packing boxes. The object of holding up these successful examples is to make young men thrifty instead of prodigal.

Now, the truth is that many of these examples are liable to be misleading. They would induce young men to follow ignoble aims in life. Most young men could make their time far too valuable to employ it in straightening crooked nails, considering their value, to say nothing of the danger to thumbs and eyes attending the process. It is well to be thrifty in saving twine, but to consume a dime's worth of time in saving a cent's worth of twine is not a paying occupation; and it would certainly be poor policy to follow the example of the Philadelphia miser in the matter of using wrapping paper when good stationery is so cheap. The man with the muck-rake, described by Bunyan, was too closely engaged with it to give attention to the better inducements offered him elsewhere by the angel; and Bunyan leaves the reader with the impression that he acted the part of a foolish person by his attention to a trifling matter. Young men should try to seek success in something worth doing rather than in matters which are of no account in the world.—*Prof. Lantz.*

### Civics in the Public Schools.

A widespread and wholesome interest has recently been awakened in the subject of civics; the term being used to express all that pertains to the duties devolving upon a citizen in his relations to the government under which he lives.

In view of the growing tendency, now exhibited in many of our large cities, toward anarchy and civil strife, this awakening of interest comes none too soon for the safety of the cause of free government. It is certainly high time that thinking people should consider the danger to which we are exposed from opening the doors of the nation to men who have been banished from their native countries because of their opposition to the restraints of law. Granted that the laws opposed were unjust and oppressive; yet it is not necessary to the cause of justice that these people, who have not yet adjusted themselves to the conditions of society in a republic, should be permitted to array themselves against law here by organizing themselves into societies for the dissemination of ideas which strike at the very foundations of our institutions.

However, the very liberty whose preservation we desire grants and perpetuates opportunities for teaching socialism; and it is the duty of patriotic people to

inquire what can be done to counteract its evil tendency, and thus render futile its efforts at destruction.

The establishment of the American Institute of Civics was a step in the right direction. It numbers among its members and council thoughtful men,—statesmen, educators, journalists, etc., from every section of the United States, and of all shades of political opinion. Its object is to secure better government through the enlightenment of the citizens as to their duties and privileges as such. It publishes an organ called the *Citizen*, which, with its able corps of contributors, must ultimately wield an immense influence in the work.

But it is to the great body of teachers of the country that we must look for the best results in promoting the cause of good citizenship. Our common schools must take up the work, and make instruction in the science of government a part of every course of study. Comparatively few of those who are to form the great mass of our future voters will ever have more than an elementary education. That these should grow up ignorant of their duties and privileges in relation to the community, the State and the nation, would be most deplorable; and yet, unless an effort is made to teach these in the public schools, they must be learned in a most imperfect manner, and often from those who are the enemies of peace and good order in civil affairs.

Already the Institute of Civics has accomplished good in calling the attention of educators to the importance of this department of instruction. Through its influence the State Superintendent of Public Instruction of Louisiana has made the teaching of civics a part of the requirement of the public schools of that State. Other States are about to follow this example. Indeed, there is as great need in the schools for this branch of instruction as for hygiene; and the day is not distant when both of these will be taught in every school of the land.—*Prof. Lantz.*

### Board and Rooms.

No provision for rooms and board is made at the College. The students all find homes in families or in family boarding-houses, at rates varying from \$3.00 to \$4.00 a week for board with furnished room. Lists of boarding-places, with prices and accommodations, can always be had at the President's office, and students are required to notify the President of their rooms when selected.

Lists of rooms for rent without board may also be had by those who wish to board themselves. Directions and advice are gladly given by any of the officers.

Entering College.  
Applicants for admission at the beginning of the year, in September, must be at least fourteen years of age, and able to pass a satisfactory examination in reading, writing, arithmetic including percentage and interest, geography and elements of English grammar. Those applying later in the term must show sufficient advancement to enter the classes already in progress. Every effort should be made to begin with the first of the term, in order to advance with the class from the first.

Applicants of mature age who, for lack of advantages, are unable to pass the full examination may be received on special conditions.

Applicants for advanced standing in the course must pass examination in all the previous studies of the class to be entered; but, if they have pursued such studies in other institutions of similar rank, they may receive credit for their standing in those institutions upon presenting a certificate from the proper officer, showing that their course has been equivalent to that given here.

### A Good Education Pays.

1. In dollars and cents. All testimony of statistics agrees in showing that educated laborers, of all ranks, have better work and better wages than the uneducated.

2. In influence and position. Careful estimates make it certain that the chances of promotion to places of trust and power among men are almost two hundred times as great to an educated man as to an uneducated.

3. In usefulness. The bulk of good work in the world,—discovery, invention, government, philanthropy and religion,—is brought about by those who learn to think by study.

4. In enjoyment. Our pleasures grow out of what we are ourselves more than from surroundings. A well-trained man sees, hears and handles a great deal more of the world than an untrained one. All things do him good, not so much because he owns them as because he understands them. He always has good things to think about.

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A Popular Journal of General Literature.

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J. B. LIPPINCOTT COMPANY, Publishers,  
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## Joint Public Sale.

MANHATTAN, KANSAS, JUNE 8th, 1886.

(The day before College Commencement.)

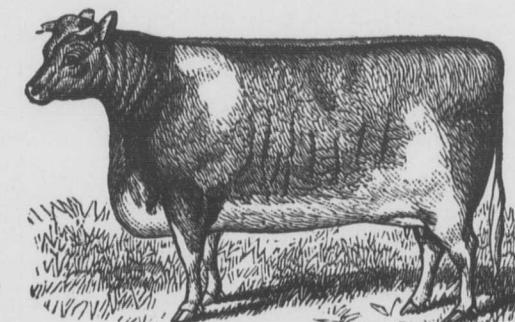
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A choice lot of recorded Berkshire and Poland-China pigs will be included in the sale.

TERMS.—Five per cent discount to cash purchasers. Six months' time will be given on approved notes, interest at ten per cent.

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MANHATTAN, KANSAS.

E. M. SHELTON, Supt. Farm.  
BILL & BURNHAM.

# THE INDUSTRIALIST.

SATURDAY, MAY 15, 1886.

## CALENDAR.

1885-86.

FALL TERM.—Sept. 10th to Dec. 18th.  
WINTER TERM.—Jan. 5th to Mar. 26th.  
SPRING TERM.—Mar. 29th to June 9th.  
June 9th, Commencement.

Persons receiving the "Industrialist" need have no fear of bills to come; for the paper always stops with the expiration of subscriptions, unless continued by favor of a friend or of the College.

## BONDS WANTED.

School District bonds issued on College blanks will bring their par value at once. Address T. P. Moore, Holton, Jackson Co., the College Loan Commissioner.

Prof. Cowgill has been kept from his classes most of the week by a subpoena in the celebrated White-Nimmoock case, now undergoing legal examination in Rice county.

Mr. Lewis W. Call, of the U. S. Signal Service, and a graduate of this College in '83, gave us a short visit on Thursday. Mr. Call has recently been ordered to report for duty at Washington.

Yes, the Seniors have a "class pin." It should be remarked here, however, that our students are guilty of less of this sort of nonsense than any other body of students in the world, and this particular vanity is not likely to have more than a temporary softening influence.

The moral of all this cyclone business is that if you wish to be perfectly safe from these atmospheric rumpusses come to Kansas; for while everywhere east of here the cyclone destroys towns and people at sight, in Kansas it settles down quietly to the business of making the biggest crops of grass, corn and spring grain on earth.

During the past two weeks the farm industrial boys have put up, unaided except by the foreman, one hundred rods of barbed-wire fence of four wires, posts sixteen feet apart; and besides, a great deal of grading about the new barn, and plowing and planting have been done, to say nothing of caring for a large herd of cattle and various miscellaneous undertakings.

Mr. Silas C. Mason and Miss Effie Woods, the latter a graduate of '85, received hearty greeting from the hosts of friends both have on College Hill, on Tuesday morning. Mr. Mason follows farming, and finds it a healthful and profitable pursuit. He has lately secured a lease of father-in-law Quincy's 450-acre farm on a term of five years. Miss Woods has just finished teaching a prosperous term of school in her home district.

Elsewhere on this page, Secretary Graham writes an essay which, while upon a subject not nominally exciting, will still be read by students, and those interested in the work of the College everywhere. In particular, we commend to all doubting Thomases the fact that 428 students have so far been enrolled, this great company of youngsters coming from 60 Kansas counties and 18 States and counties out of Kansas. That this Agricultural College is patronized by agriculturists is borne out by the single item: 156 new students are directly from farm homes.

We noticed on Wednesday a couple of boys, belonging to the horticultural industrial force, spraying the apple trees with water containing London purple in suspension. They had a tank holding several barrels and mounted on a wagon, and from the tank a force-pump and hose distributed the poisonous mixture efficiently and expeditiously, scarcely three minutes being necessary to drench each tree. If the results of this process are what is claimed, this ought to be a tolerably satisfactory solution of the question how to destroy the insect enemies of our apples.

Charles Burnham, of Bill & Burnham, who unite with the College in the public sale of pure-bred stock, has worked up a characteristic enterprise, having engaged a special train to convey his friends from Burlingame to Manhattan and return on the day of the sale, June 8th. We venture to say that our great joint sale is the only sale of the season which runs a special train in its interest. It is understood that the Burlingame people will bring a brass band with them, and make a picnic on the College grounds after their visit to the Bill & Burnham estate.

The absence of clover and orchard-grass—almost totally destroyed by last winter's freezing—begins to be painfully apparent in the diminished yield of pasture furnished by our meadows, and a threatened tremendous deficit in our hay crop. The Kansas man who expects to grow tame grasses successfully without orchard-grass and red clover reckons without his host in a way that makes him quite ridiculous. But you reply, "These were destroyed last winter." True, but this was only one winter in fifteen; and even though they were destroyed once in four or five years, we could not dispense with them.

The following is the order of exercises for Commencement week:—

*Thursday, June 3d.*—Annual address before the Webster Society, by Mr. Sam Kimble, at 8 o'clock P. M.

*Sunday, June 6th.*—Baccalaureate Sermon, by President Fairchild, at 4 o'clock P. M.

*Monday, June 7th.*—Examinations; Class Day exercises at 4 o'clock P. M.; Undergraduates' exhibition at 8 P. M.

*Tuesday, June 8th.*—Examinations; cattle sale at 1 o'clock P. M.; annual address at 8 P. M.

*Wednesday, June 9th.*—Graduating exercises at 10 o'clock A. M.; military drill at 4 o'clock P. M.

The State Agricultural College has 427 students enrolled, an increase of 30 over last year's enrollment. The K. S. A. C. is a model institution of the kind.—*Jewell Co. Republican*.

Mr. S. C. Mason calls our attention to the fact that in his section, Clay county, and presumably elsewhere, farmers are unwittingly disseminating, with purchased grass seeds, that vilest of weed pests, the ox-eye daisy; and as most of them are unfamiliar with the nuisance, it is likely by this means to get a secure footing on many Kansas farms. We have only to say that when the ox-eye daisy gets its mortgage on Kansas farms, in general we shall hear no more talk of drouth and grasshoppers; our farmers will have something else to talk about. All native agricultural aggrations will seem tame to insipidity in comparison with this imported agricultural "holy terror," the ox-eye daisy. Mr. Mason gives with evident satisfaction, his experience with growing winter oats for hog pastures and stock pastures in general. He pronounces these oats superior to rye for fall and spring pasture, but especially useful in furnishing early spring and summer forage for swine.

The total enrollment, as shown by the forthcoming catalogue of 1885-86, is 428, of whom 301 are young gentlemen and 127 ladies. Of this number, 378 come to us from 60 counties in Kansas and 50 from 18 other States, as shown below:—

### KANSAS COUNTIES.

Allen	1	Lyon	3
Atchison	9	McPherson	2
Barton	3	Marshall	5
Bourbon	1	Miami	3
Brown	14	Montgomery	4
Butler	2	Morris	3
Chase	3	Nemaha	5
Cherokee	2	Osage	7
Clay	25	Osborne	6
Cloud	6	Ottawa	8
Coffey	3	Phillips	1
Cowley	1	Pottawatomie	11
Crawford	1	Reno	1
Davis	9	Republic	9
Decatur	2	Rice	5
Dickinson	4	Riley	121
Douglas	3	Rooks	1
Elk	1	Russell	1
Ellsworth	2	Saline	1
Greenwood	1	Shawnee	9
Harper	1	Sheridan	1
Harvey	1	Smith	2
Jackson	3	Stafford	1
Jefferson	7	Summer	3
Jewell	1	Trego	1
Johnson	2	Wabaunsee	18
Kingman	4	Washington	4
Leavenworth	4	Wilson	7
Lincoln	1	Woodson	1
Linn	8	Wyandotte	2

### STATES.

Arkansas	1	Kentucky	2
Arizona	1	Missouri	10
California	1	Nebraska	3
Colorado	2	New Jersey	1
England	2	New Mexico	1
Illinois	10	Ohio	2
Indiana	3	Pennsylvania	2
Indian Territory	4	Utah	1
Iowa	3	Wyoming	1

The total number of applicants for admission during the year was 453 of whom 25 were not admitted because of lack of preparation.

The average age of the whole number admitted is 18.77 years.

During the year there have been admitted 233 new students, 92 of whom express an intention of taking the full course, 108 a part of the course, and 33 are undecided. The following table shows the occupations of the parents of the students admitted for the first time during the year:—

Farmer and stock-raiser	156	Editor	3
Housekeeper	3	Barber	1
Merchant	13	Banker	4
Hatmaker	1	Miller	5
Florist	1	Day laborer	2
Nurseryman	2	Minister	6
County officials	4	Police judge	1
Hotel keepers	3	Physician	3
Dentist	2	Civil engineer	1
Mason	3	Real estate	1
Teacher	3	Lawyer	1
Painter	2	Book-keeper	1
Carpenter and mechanic	8	Laundry	1
		Not given	4

For native States, the following answers were given:—

Arkansas	1	New York	4
California	2	North Carolina	2
Canada	2	Ohio	15
England	2	Pennsylvania	13
Illinois	33	Scotland	2
Indiana	14	Saxony	1
Iowa	18	Tennessee	2
Kansas	98	Utah	1
Kentucky	3	Vermont	3
Michigan	2	West Virginia	3
Mississippi	2	Wisconsin	2
Missouri	8		

The average age, by classes, of all the students enrolled during the year is—for resident graduates, 22.39 years; fourth-year class, 21.19 years; third-year class, 19.68 years; second-year class, 18.57 years; first-year class, 18.48 years.

The Kansas State Agricultural College, at Manhattan, Kan., seems to be conducted with a view to turning out young men who shall be fitted to begin life as practical, industrious farmers, with head and hands properly educated and trained for usefulness.—*South-Central Cultivator and Dixie Farmer*.

## COLLEGE SOCIETIES.

**ALPHA BETA.**—Chartered, December 26th, 1870. Meets in the Society Hall every Friday at 2:30 P. M. Ladies admitted. New students cordially invited to attend.

MISS IDA QUINBY, President.

J. W. VANDEVENTER, Secretary.

**WEBSTER.**—Chartered, January, 1871. Meets in Society Hall every Saturday evening. Visitors, especially students, always welcome,

C. M. BREESE, President.

W. J. BURTIS, Secretary.

**SCIENTIFIC CLUB.**—Meets on first Friday evening of each month. Composed of members of the Faculty and advanced students. Devoted to the improvement of its members in general scientific knowledge, and the encouragement of original investigations.

PROF. WALTERS, President.

Mrs. KEDZIE, Secretary.

**HAMILTON.**—Chartered January 29th, 1885. Meets every Saturday evening. Admits gentlemen only. Visitors always welcome.

N. E. LEWIS, President.

A. WALTERS, Secretary.

The Y. M. C. A. meets at 3:30 P. M. Sunday.

C. A. MURPHY, President.

L. B. PARKER, Secretary.

The Y. W. C. A. meets Tuesday afternoon.

NELLIE COTTRELL, President.

LORA WATERS, Secretary.

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C. A. MURPHY, President.

## Kansas Educational Notes.

PROF. J. D. WALTERS.

Senator Plumb has given \$500 to the Bethany Normal Institute, at Lindsborg—and this is not his first subscription. Work has been commenced on the new college building.

### Our Schools.

The following paragraphs are from an article by E. E. Heath in the Valley Falls *New Era*:

The State has an interest in children, an interest coequal, we believe, with the parent. It claims the right to say to the parent, "You must educate your child." And to carry out the idea, it furnishes the means whereby the child may be educated. The parent owes the child food, clothing and shelter, and the State an education. The common school is the great promoter of republicanism; it equalizes grades of society, and breaks down the tendencies to aristocracy. "As the magnet lifts from the dust the bits of metal and exposes them to view, so the common school reaches out its generous hand, lifts the poor boy from the depths of obscurity, places within him the development of an enlightened mind, and places him in the highest position of honor and trust." We glory in our success as a republic, in our growth as a State, but we owe it all to our free schools. We believe that we can say it, without fear of denial, that the public school today supplies the best elementary training in the land. To be sure, there are defects, there are chances for improvement, but it is doing a great work.

Teachers must read. They must study. They must think. They must read what? We say, first of all the daily paper. An outlay of a few dollars in one of the great dailies of Kansas City or Topeka is treasure laid up which will yield an abundant income in fresh and sparkling thought for the school room. We look at our Kansas City *Journal* as our best text-book. And one trial will convince the most skeptical. The teacher who takes a daily paper for a week will miss it, and he who takes it a month is lost without it. The news from all parts of the State should be carefully read and digested. The editorials will show the drifts of popular opinion on the leading ideas of today. Next to the daily, take a weekly of the county. This supplies the local news. Then take the *Century* or *Harper's Magazine*, both if possible, and follow with the *Western School Journal* for educational thought.

For a library, we suggest the following: The Bible, Shakespeare, Morley's Men of Letters, Macaulay's Essays, Gibbon's Rome, Knight's History of England, Green's English People, Plutarch's Lives, Parkman's series of American History, Life of Washington, Greeley's American Conflict, Blaine's Twenty Years of Congress, Irving's Knickerbocker, Hawthorne's Scarlet Letter, Scott's Ivanhoe, Page's Theory and Practice of Teaching, Sweet's Methods; Kiddle's How to Teach, Quincy Methods, but we will not continue. We have given a few hints. The above books can be bought for a trifling sum, and they will form a nucleus. But we believe more in the newspaper as an educator than in the book.

Yet we should familiarize ourselves with the thoughts and language of the ages gone by. The time spent in reading most of the current novels of the day is wasted,—more than that the mind too often becomes contaminated and diseased from the perusal of an evil book, and loses forever its power for good.

### A Good Education Pays.

1. In dollars and cents. All testimony of statistics agrees in showing that educated laborers, of all ranks, have better work and better wages than the uneducated.

2. In influence and position. Careful estimates make it certain that the chances of promotion to places of trust and power among men are almost two hundred times as great to an educated man as to an uneducated.

3. In usefulness. The bulk of good work in the world,—discovery, invention, government, philanthropy and religion,—is brought about by those who learn to think by study.

4. In enjoyment. Our pleasures grow out of what we are ourselves more than from surroundings. A well-trained man sees, hears and handles a great deal more of the world than an untrained one. All things do him good, not so much because he owns them as because he understands them. He always has good things to think about.

### Expenses.

Tuition is free, and no general fee for incidental or contingent expenses is charged. In a few special departments of instruction, the following payments are made in advance to the Secretary:

In analytical chemistry, the students pay \$3 a term for the chemicals and apparatus used in their laboratory practice and analysis.

In the printing office, young men, in their first year, pay \$3 a term for office expenses. Advanced students have the use of the office for the work performed during the industrial hours.

In telegraphy young men pay \$3 a term for office expenses.

Young women are furnished both printing and telegraphy free of expense, these two offices, with the Sewing and Cooking Departments, being provided especially for their industrial training.

Lessons in instrumental music, two a week, are from \$10 to \$14 per term, according to its length; one a week, \$6 to \$8.40. One half is to be paid to the instructor in charge with the first lesson, the other half at the middle of the term.

The cost of text-books at the book-store is, for the first year about \$4 a term; for the second year, \$2.75; for the third year, \$7.50; and for the fourth year, \$5.50.

Board and washing are not furnished by the College. Board, with furnished room, can be procured in private families at from \$2.75 to \$4 per week. Some students board themselves at even less cost, and rooms for the purpose can be obtained at a rent of from \$1 to \$2.50 a month. Washing costs from \$0.50 to \$1 a dozen pieces.

Ordinary expenditures, aside from clothing and traveling expenses, range from \$100 to \$200 a year.

### Grounds and Buildings.

The farms, with the stock, orchards, gardens, vineyards, forestry and ornamental grounds, are used for experiment and illustration. All that is not strictly experimental is managed with a view to highest economy and profit.

On the larger of the farms, upon an elevation at the western limits of the city of Manhattan, and facing toward the city, are the College buildings. All are of the famed Manhattan limestone, and surrounded by pleasantly-arranged and planted grounds.

College, 130 by 250 feet in extreme dimensions, arranged in three distinct structures, with connecting corridors. This building contains in its two stories and basement, offices, cloak-rooms, studies, chapel, library, reading room, model kitchen and dairy, sewing rooms, society rooms and ten class rooms.

Chemical Laboratory, one story, 36 by 99 and 46 by 75 feet of floor space, in form of a cross. It contains eight rooms, occupied by the Department of Chemistry and Mineralogy.

Mechanics' Hall, 39 by 103 feet, of two stories, occupied by the Carpenter shop and finishing room, Telegraph and Printing offices, and Music rooms.

Horticultural Hall, 32 by 80 feet, one story and cellar, having cabinet room, class room, work room and storage, with greenhouse attached.

Two stone dwellings, occupied by the President and the Professor of Agriculture.

Armory Hall, 46 by 96 feet, and two stories. This building, which has served many purposes, is now to be fitted for armory and drill room below, and for class room, laboratory and museum of the Department of Natural History.

The barn is of stone, 48 by 96 feet, with side-hill basement stables, granary, tool-room, etc.

The blacksmith shop, piggery, implement shed, and various out-buildings are, of wood.

### Objects.

This College now accomplishes the object of its endowment in several ways.

First, it gives a substantial education to men and women. Such general information and discipline of mind and character as help to make intelligent and useful citizens are offered in all departments, while the students are kept in sympathy with the callings of the people.

Second, it teaches the sciences applied to the various industries of farm, shop and home. Chemistry, botany, entomology, zoölogy and mechanics are made prominent means of education to quick observation and accurate judgment. Careful study of the minerals, plants and animals themselves illustrates and fixes the daily lesson. At the same time, lessons in agriculture and horticulture show the application of science; and both are enforced by actual experiment.

Third, it trains in the elements of the arts themselves, and imparts such skill as to make the hands ready instruments of thoughtful brains. The drill of the shops, gardens, farm and household departments is made a part of a general education to usefulness, and insures a means of living to all who make good use of it. At the same time, it preserves habits of industry and manual exertion, and cultivates a taste for rural and domestic pursuits.

Fourth, it strives to increase our experimental knowledge of agriculture and horticulture. So far as means and circumstances permit, experiments are undertaken with a view

to more definite results than ordinary experience can give. By this method the students themselves are trained to a more accurate observation and judgment in these practical tests of principles in farming.

Fifth, it seeks to disseminate such practical truths as have stood the test of scientific inquiry. For this purpose it publishes the *INDUSTRIALIST*; and its officers share in debates and consultations of farmers and horticulturists throughout the State. Each winter a series of six Farmers' Institutes is held in as many different counties of the State. In these the Faculty share with the people in lectures, essays and discussions upon topics of most interest to farmers.

### General Duties and Privileges.

General good conduct, such as becomes men and women anywhere, is expected of all. Every student is encouraged in the formation of sound character by both precept and example, and expected "upon honor" to maintain a good repute. Failure to do so is met by a prompt dismissal. No other rules of personal conduct are announced.

Classes are in session every week-day except Saturdays, and no student may be absent without excuse. Students enrolled in any term cannot honorably leave College before the close of the term, unless excused beforehand by the Faculty. A full and permanent record of attendance, scholarship and deportment shows to each student his standing in the College. After each monthly examination a report of advancement is made to parents; and any student, upon leaving College at the close of a term, may receive a certificate of standing.

Chapel exercises occupy fifteen minutes before the meeting of classes each morning, and unnecessary absence from them is noted in the grades.

Twice in each month the whole body of students gather for a lecture from some member of the Faculty, or for the rhetorical exercises of the third and fourth-year classes. On alternate weeks all the classes meet at the same hour, in separate class-rooms, for exercises in elocution and correct expression.

There are three prosperous literary societies, two of them of many years' standing. All meet weekly, in rooms set apart for their use. The *Alpha Beta* is open to both sexes, and holds its meetings Friday afternoons. The *Webster* and the *Hamilton* admit to membership gentlemen only, and meet on Saturday evening.

The Scientific Club, composed of members of the Faculty and students, meets in the Chemical Laboratory on the first Friday evening of each month.

Every Friday evening a students' prayer meeting is held in a College Society Room, led by a member of the Faculty. On the Sabbath students are expected to attend services at least once in the different churches of the city.

Occasionally during each term the College Hall is opened for a social gathering of faculty and students, in which music, literary exercises and friendly greeting find place.

Public lectures by prominent men of the State are provided from time to time, as opportunity offers. All are free.

The Manhattan Horticultural Society meets monthly, and other farmers' associations occasionally, at the College, and the students have the privilege of attending these meetings.

### Industrial Arts.

*Industrial Arts.*—The training in these departments is designed to be systematic and complete in each, so that any student, following a single line diligently through a whole four-years' course, gains the essentials of a trade and a reasonable degree of skill. Those who wish only a general acquaintance with the arts can take shorter courses in several of them; but all are to select with definite purpose. In the established course, young men are required to take the regular term in the carpenter shop and on the farm and gardens whatever the industrial chosen. Young women are required to take one term in the kitchen laboratory and one in the dairy, though other industrials may occupy their course.

*Dairying.*—During the spring term, daily instruction and practice in the different branches of dairying is given the ladies of the second year by the Instructor in Household Economy. A dairy, well equipped in modern appliances for the manufacture of butter and cheese, is connected with the Department of Household Economy. Here the regular dairy work is supplemented by a short course of lectures intended to explain the best practices in the art of butter and cheese making, and to give the reason therefor. The following topics cover, in the main, the instruction given in the class: Influence affecting the quality and quantity of milk; butter making; the household and factory system of cheese making. Creameries: "deep" and "shallow" setting system; packing and preserving butter.

*Agriculture and Horticulture* are required of young men as industrials during one term of the second year and one term of the third year. In these, practice is made to illustrate and emphasize the teaching, and covers essentially the same ground.

*Carpentry, etc.*—On entering the shops, all take the same first lessons in sawing, planing and dressing lumber, making mortises, tenons and joints, and in general use and care of tools. Later, one who chooses a trade is provided with work directly in the line chosen; while the farmer's course provides for general training in a great variety of operations, rather for ingenuity than skill. In the full course of a carpenter, special instructions are given in the whole range of work, from framing to stair building. Carpentry is required of young men during one term of the first year.

In iron work, instruction is given in ordinary work,—forging, filing, tempering, etc.

*Printing.*—Two courses are pursued in this art. In one the student is taught the implements or tools employed in typography, and how to use them; composition; imposition; correcting proof; technical terms; presses and their workings; and the general duties of a first-class workman. Everyone is encouraged in studying the rise and progress of printing and related arts. Habits of accuracy and thoroughness are required in order to advancement. The second course of lessons, alternating with those of the first, embraces instruction in spelling, capitalization, syllabication, punctuation, proof-reading, preparation and criticism of essays, and such other work as will make the student accurate and expert in language. Wilson's Punctuation is the text-book; but much of the instruction is oral,—such as grows out of the every-day experience of the office.

Admirable drill is furnished by the *INDUSTRIALIST* to all, but especially to those who take the full course. The printing which the departments of the College require gives to the advanced student a fair knowledge of the principles and practice of job work.

*Telegraphy.*—The course of training involves for beginners the characters that compose the alphabet, and combinations of these characters into words and sentences—attention being paid to spelling and to short and precise expressions in messages,—abbreviations, signals, forms of messages, train orders, reports etc. To the more advanced is given regular line business, as press reports, messages, cipher messages, and orders in all forms used by prominent telegraph companies, together with the necessary book-keeping, upon exact copies of the blanks in actual use, thus giving the students an understanding of the work of an operator. A portion of the time is devoted to instruction in the management of lines, batteries, instruments, etc. The elementary principles of electricity, magnetism and electro-magnetism, involved in telegraphy, are taught and illustrated by experiments. The more recent inventions related to the art are discussed and explained. Pope's Handbook of the Telegraph is used as a text-book.

*Sewing.*—Young ladies are taught in all ordinary forms of sewing with needle and machine, and in cutting, fitting and trimming dresses and other garments. A straight-line system of cutting and fitting is taught, and systems are furnished to students at wholesale rates. They may furnish materials, and work for their own advantage during the hour of practice, under the direction of the Superintendent.

*Instrumental Music.*—Provision is made for the teaching of music upon instruments of all sorts. A full course upon the organ or piano extends over four years, including harmony and composition; but students may take lessons for a single term if they choose. The College furnishes the instruments for daily practice, but the instruction is paid for at usual rates.

### General Course of Study.

Each student is expected to take three studies besides one hour's practice in an industrial art; and variation from this rule can be only with consent of the Faculty.

Parallel courses are offered to both sexes with such differences as their necessities seem to call for. The following gives the general scope of the two; but fuller explanations are found in the annual catalogue.

FIRST YEAR.	FALL TERM.	Arithmetic. English Analysis. Geometrical Drawing.
	WINTER TERM.	Book-keeping, Drawing. English Structure. United States History.
	SPRING TERM.	Algebra. English Composition. Botany.
SECOND YEAR.	FALL TERM.	Algebra completed. Elementary Chemistry. Horticulture. 14 Lectures in Military Science.
	WINTER TERM.	Geometry. Practical Agriculture or Household Economy. Organic Chem. and Mineralogy. 12 Lectures in Military Science.
	SPRING TERM.	Geometry completed, 5 weeks. Drawing, 5 weeks. Entomology. Analytical Chemistry.
THIRD YEAR.	FALL TERM.	Trigonometry and Surveying. Physiology. General History.
	WINTER TERM.	Mechanics. Agricultural Chemistry. Rhetoric.
	SPRING TERM.	Civil Engineering. Drawing, (or Hygiene). Chemical Physics. English Literature.
FOURTH YEAR.	FALL TERM.	Agriculture or Literature. Meteorology. Psychology.
	WINTER TERM.	Logic, Deductive and Inductive Zoology. Structural Botany.
	SPRING TERM.	Geology. United States Constitution. Political Economy.

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## KANSAS STATE AGRICULTURAL COLLEGE

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### COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.  
College Lands and all business connected with their sale are in charge of the Land Agent.  
Bills against the College should be presented monthly, and, when audited, are paid from the office of the Treasurer, in Manhattan.  
All Payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka.  
The INDUSTRIALIST may be addressed through Prof. E. M. Shelton, Managing Editor. Subscriptions are received by Sup't. Geo. F. Thompson.  
Donations for the Library or Museums should be sent to the Librarian, or to Prof. Kellerman, chairman of the committee on Museums.  
Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.  
General information concerning the College and its work,—studies, examinations, grades, boarding places, etc.,—may be obtained at the office of the President or by letter.

### Uncle Sam's Big Business.

Public documents are generally received with unkind thoughts, if not remarks, and are pushed aside, where they lie neglected until, in a critical moment, they are hurled at some aggressive nuisance. But they contain some interesting facts, as we shall endeavor to show in a practical way. These reports relate, of course, to the last fiscal year. Our governmental uncle's income last year was a little over \$1,000,000 for each business day. Uncle Sam's revenue last year was \$322,000,000 and he spent \$300,000,000. We pay now-a-days \$1,000,000 a week for interest on the public debt. In 1867 we paid \$3,000,000 a week to the bloated bondholders. The bondholders have been shoved aside by the pensioners, who drew out \$56,000,000 last year and who demand this year \$75,000,000.

Nor will the pension charge soon dwindle to small proportions. It has come to stay for generations, and, as widows of deceased soldiers are entitled to pensions, it is estimated that there will be a pension bill until the year 2004, or 144 years after the close of the civil war. For example, a soldier of 20 at the close of the war marries fifty years later a girl of 20. The girl proves to be tough, and lives to be 80 years old herself. She would draw a pension until 1975. Exaggerate all these ages, and we would have a case that would extend to the limit named.

Uncle Sam is a great builder, and today he is erecting eighty fine buildings, some of which will cost over \$1,000,000.

Uncle Sam is altogether the largest holder of improved real estate in the country, and his hunting ranges in the far West are still superb.

The homestead law is being abused in western Kansas. Hundreds of men have gone out into the new counties, filed their "intentions," paid a few dollars to land sharks, and returned to their real homes in this or other communities. They are not homesteaders under the meaning of the law: they are speculators. Not one in twenty intends to live on the quarter section he has taken. He simply files the claim, puts up the fee, and waits for some one to come along and pay him about ten prices for his investment. It is a bad system.—*Clay Co. Dispatch.*

### Hard Times.

Hard times all over the civilized world! So they say, and there is no doubt about it. We have our share in the United States; but one of our troubles is that we have not learned to utilize our wealth. More is wasted in this country than would keep some of the European nations. Take "sunny Italy" for example. It is not strange that the Italians are flocking to this country. Nor is it singular that many of them are such degraded animals. In Italy there are 8259 communes for parishes. Of these, 1459 have no decent drinking water, and not enough of what there is. In 6380 of these there is no drainage, and every species of manure and filth goes upon the ground. In 1876 of these communes there are not even the ordinary accommodations in the dwellings. In 1483 the houses have no chimneys, a door or window or a hole in the roof serving to carry off the smoke. In 3439 communes, more than half the number, the people pass their winter evenings in the barns to keep warm, and in 1122 others may sleep there. In 1699 communes the people never eat bread or pie, and as to meat, it is rare or wholly unknown in 4955 communes. One result of this style of living is seen in the recruiting for the army in late years, when over half the candidates were rejected for undersize or deformity. Another result was witnessed in the terrible ravages of the cholera, which led to the gathering of these statistics.

This deplorable state of things in Italian rural towns ought to help farmers even in "worn-out" New England to be reconciled in some degree to their lot.

If those hordes of peasants were turned loose upon our half-utilized acres, the poor wretches would thank God and consider themselves in Paradise. They have the advantage of climate, to be sure, but the balmyest of skies is no guarantee against the fruits of ignorance and shiftlessness. In light of such facts, one does not wonder that the Malthusian doctrine has believers. A plague is almost a blessing to such people, giving a better chance to survivors.—*Our Country Home.*

### How Kansas Looks After Her Poor.

A homestead to the extent of 160 acres of farming land, or of one acre within the limits of an incorporated city or town, occupied as a residence by the family of the owner, together with the improvements on the same, shall be exempt from forced sale under any process of law, and shall not be alienated except by joint consent of husband and wife when that relation exists.

No value is affixed to the homestead. It may be worth a million dollars. No personal property is exempt for the wages of a servant, mechanic, laborer or clerk. Every person residing in the State and being the head of a family shall have exempt from seizure upon attachment or execution or other process, issued from any court in the State, family Bibles, school books and family library, family pictures, musical instruments used by the family, all beds, bedsteads and bedding used by the debtor and his family, one sewing machine, one spinning wheel, and all other implements and other household furniture not herein mentioned not exceeding \$500, two cows, ten hogs, one yoke of oxen and one horse or mule, a span of horses or mules, and twenty sheep and their wool; necessary food for the support of the stock for one year; two plows, dray and other farm utensils not exceeding \$300; vegetables, grain, meat, groceries, etc., for the family for one year; the tools and implements of any mechanic, minor or other person, kept for the purpose of carrying on his business, and not exceeding \$400 in value; library implements and office furniture of any professional man.—*Exchange.*

THE Cincinnati *Enquirer* is apprehensive that broom-corn is likely at no distant day to revolutionize the bread-stuff supply of the world. It says a process has been discovered by which the finest and most delicious flour can be made from the seed to the extent of one half its own weight, and leaves the other half a valuable food for meal and milk. The average yield per acre is three hundred, and in a number of instances five hundred, bushels, or thirty thousand pounds have been secured. The italics are ours.—*Colman's Rural World.*

THE weeping willow, says the *Garden*, seems to have had a romantic history. The first scion was sent from Smyrna in a box of figs to Alexander Pope. Gen. Clinton brought a shoot from Pope's tree to America in the time of the Revolution, which, passing into the hands of John Parke Custis, was planted on his estate in Virginia, thus becoming the progenitor of the weeping willow in America.

THE Biddeford *Journal* sagely remarks, "Stick to your flannels: they are better than quinine and spring bitters." It is good advice.

### Our Exchanges.

THE New York *Tribune* gives good advice when it says: "Cut down the garden to the smallest space consistent with the needs of the family. Then take good care of it."

Next Monday, Bob Hutchinson will start the longest furrow in the world, from Wilson to Denver and return, a distance of 822 miles. His contract calls

for five 14-inch furrows on each side of the track. His force will consist of three men besides himself.—*Ellis Review.*

The Clay Center *Dispatch* wonders why a citizen can detect fourteen different kinds of smells emanating from his neighbor's pig pen and fails to recognize one that arises from his own unclean premises.

The past winter has cost this country in loss of stock between \$15,000 and \$20,000. A great many of our cattle men have lost from half to three quarters of their cattle, and they are yet buying.—*Rawlins County Democrat.*

The Bill to promote the Commissioner of Agriculture into a cabinet officer has been made to wait from one week to another all the present session of Congress. It ought to be postponed every week. The country is not pining for any permanent and expensive collection of pseudo-scientific agricultural futilities.—*North Topeka Mail.*

Tuesday afternoon a prairie schooner, drawn by four horses, was the subject of considerable merriment. The canvass of the schooner was a panorama of pretensions more than ordinary. The various features of emigrant life were illustrated. Of course something about trusting in somebody and busting in some place was feelingly referred to in the usual manner. The illustrations of this highly-illumined wagon top were no ordinary charcoal or lamp black affairs, but really paintings of many colors, and gorgeous coloring at that. Attached to this schooner-and-four was a delightful two-wheeled mansion labelled dining car. Altogether it was a "moving panorama" of 16-carat fine dimension.—*Salina Journal.*

A year ago Jesse Crall sent a message over the Western Union lines ordering the shipment of a race horse to Valley Falls. The operator made it read Neo-sho Falls, to which place the horse was shipped, greatly to the loss and annoyance of the owner. Mr. Crall brought suit in the District Court for damages, and the telegraph company denied liability on the ground that the blanks of the company expressly state that the company will not be responsible for mistakes made on unpeated messages. The Crall message was not a repeated one, but his attorneys insisted that he had a valid claim for damages nevertheless, and Judge Martin yesterday, in deciding the point, held that such a provision was against public policy and therefore of no effect. Judgment was awarded against the company in the sum of \$136.—*Atchison Champion.*

First of all, give the boy a good common school education, and, in the meantime, do not neglect his moral training. Then when he is old enough, give him an interest in the business of the farm, and allow him to procure, or obtain for him, such books and papers as will aid him to excel in farming; and in nine cases out of ten he will neither disappoint you nor himself.

Most boys (and very many men) imagine they can do better in "some other business," than the one they are engaged in and know something about, and the country boy is the most prone to think that city life is eminently superior to the country. An exchange makes this suggestion to farmer boys, and the ideas it conveys are not overdrawn:

"When you visit the city and have looked at the street fronts, do not think you have seen city life. It is the attics above and on the dark alleys back of these where hard labor ekes out a scanty support; where dwell poverty, vice and wretchedness, such as country youth might have read of, but never supposed to have a real existence; misery, such as even his nightmare dreams never pictured him."—*Kansas City Live-Stock Indicator.*

## THE INDUSTRIALIST.

SATURDAY, MAY 22, 1886.

EDITED BY THE FACULTY.  
E. M. SHELTON, MANAGING EDITOR.

### Study at Home.

Too many of our girls leave school with an idea that their studying days are over, instead of taking with them the thought that their time for good study has just begun. Many of them go into their homes, taking up a little of the housework, helping about the sewing and—waiting for the right man to come along and marry them. A few, of course, go to teaching or into some other regular work which gives them support and keeps them busy a certain number of hours each day; but very few even of these find time among the remaining hours to put in any amount of real study for improvement of mind, such as a girl just out of school is capable of taking.

Now, this is not as it should be; for as young men step out into the world, they nearly all of them carry from college, or even from the common school, some habits of study which they intend shall follow them all through their lives; and, by constantly using what they have, they not only keep all they have acquired, but they may gain a little each year. As the majority of our girls will some day become wives and mothers, and as they must in the natural course of events have more or less to do with the making up of a neighborhood at least, they each and every one ought to have some thought of self-improvement,—some idea of making herself the most useful woman possible.

Our ladies' clubs of today make a very happy effort in the direction of improvement of members by giving each lady some especial line of work; and, having this one object in view, she will readily work in that line for a time, then very easily slip off onto another subject or class of subjects. So in this way she keeps the habits of study already formed in girlhood; and with the years of experience will come strength of mind and character that can't help wielding a great influence in her little world.

Then, in the home: if the mother be able to think and talk well upon the great subjects of the day, how much more apt the boys and girls are to form opinions upon the questions brought up for discussion! Of course, at first they but echo the thoughts they hear expressed at home; but not many years pass before they begin to form opinions of their own, and then they easily learn to express them.

If the mother be interested in new books; if she watch the discoveries in science, though only in a general way; why, if she only read the "daily" regularly,—it is something; it may be much in the education of the home. There will be an air of intelligence and refinement which will rarely come in any other way.

Regular study, even though it be only in the form of reading, ought to be a part of every day's duties in every home in the land.—*Mrs. Kedzie.*

### The Farmer's Interest in Live-Stock Improvement.

Abstract of an address given by Prof. Shelton at the Farmers' Institute held at Fulton, Mo., January 8th, 1886.

We must use our own intelligence, and apply the suggestions of science and experience to our own circumstances. War is being made everywhere on the "scrub," as the miscellaneously bred animal is

called; and yet for many farms the scrub is the best breed. Emerson says: "A weed is a plant whose virtues have not yet been found out." So a scrub may be said to be an animal whose virtues have not been discovered. The man who undertakes to keep the pure-bred animal as he does the scrub is almost sure to fail. This mongrel, no less than the pure-bred, is the product of his environment. To illustrate, the British Islands are famous for their great diversity of climate, topography, fertility and rainfall; and we find three breeds of cattle, suited to each varying district.

### HOW BREEDS WERE MADE.

The Shorthorns originated in a country possessed of great fertility, and well protected from the extremes of climate. On the west side of the island, exposed to the rude blasts of the Atlantic, we find a breed with thick skins, long and abundant hair, and generally long horns. In the north part, again, we find the small Highland breeds, so well suited to the severe climate, the rugged surface and the scanty pasture of that region.

The conditions and processes that have produced a race of cattle, are best suited to its continuance. The Shorthorn in the Highlands would surely degenerate, and approximate to the form and characteristics of the small breeds there found. I advise no man to make a change in breeds unless he has a definite purpose in view—unless he knows just what he wants, and what he expects to accomplish by the change. I have known men who made such changes with the vague idea of improvement, but who soon saw the folly of the change, when it was too late to escape heavy losses and disappointment.

### THE WEEDS.

*Dr. Laws.*—Prof. Shelton, please describe the points of degeneration in the Shorthorns of which you spoke.

*Prof. Shelton.*—We all know the original Shorthorns were coarse and scrawny brutes, short in the quarter and possessed of much offal. The cattle of which I spoke lost their massive forms, became *leggy*, and in various ways assumed the original characteristics of the race from which they sprang. The most obvious ways in which a herd may be improved are by improvement in feed, in care and in habit. What I mean by habit is the use made of them. If you want *work oxen*, work them; if *milkers*, milk the females, compelling them to use all their power in that direction; if *beef*, feed well. In breeding, select such animals as have the characteristics wanted, and couple them.

Just here I am asked: What about pedigree? One says pedigree is nothing, another thinks it is everything. The truth lies half way between these contending views. We cannot depend upon an animal to perpetuate its kind unless it has a long line of *pure-bred* ancestry—a pedigree, in short, behind it. Some animals having but half or three fourths of pure blood are better than some full bloods, but the offspring of these grades will show the characteristics of the scrub. We can look only to the pure-bred for the certain transmission of the distinguishing marks of the breed. If you wish to know whether an animal is a good one to breed from, see if its ancestors had individual merit and were free from disease, and then the longer the pedigree, the better.

### IN NON-ESSENTIALS UNITY.

Another error in selecting breeding stock is the mistake of fixing upon de-

tails non-essential, to the neglect of really useful qualities. I refer to Shorthorns again, because they are more widely known than other breeds. I never heard of any one getting anything useful out of color, yet nine farmers out of ten will not look at an individual that is not red. So, many will condemn an animal because its horns have not the peculiar turn they fancy. Let us be sure that we do not base our selection upon some trivial matter that has no money value. All the so-called *points* of an animal may be divided into two classes; first, those that are in themselves useful; second, those that point to, or vindicate the possession of useful qualities. Why do careful judges place such a high value upon *touch*, the texture of the skin? It is of no value in itself, but it indicates a long list of qualities that are indispensable. If the touch is hard and skin hard and inelastic, look out for a hard feeder and an animal that is slow and late in maturing. So, the flank is of very little value in itself; it is a boiling piece of low market value. Yet the good judge knows that an animal with a long, deep flank will be a good feeder, with thick flesh and good constitution. The crops, again, —the region just back of the shoulder,—is generally ranked high, although it indicates nothing, but is itself a part of great value.

### TO IMPROVE THE POINT.

The question is often asked: How can minor defects in a herd, or individual animal, be corrected? I have seen animals, otherwise good, faulty in the flanks, others in the crops, and still others that were defective in other points. How can these faults be corrected? Generally, we advise to correct such defects by the use of a sire that is well developed in the region where the cows are defective. There arises this difficulty, however; in attempting to correct one fault, we are quite likely to develop defects of another kind. I know of only one way of correcting defects in a herd; and that is by employing males whose general character is good. Select, as a sire, an animal that is well developed, not merely in the region where the cows are defective, but in all other points; thus you correct the evil of which you complain, and not fall into other errors.

### ANENT GRADES.

The farmer's interest in live stock improvement is not likely often to carry him beyond the breeding of grades. And just here a word about the selection of the sire and the coupling of animals. What kind of sires shall be used in the improvement of our common stock? An excellent general rule is never to bring together extremes—an overgrown sire with an undersized female, for instance. Always be content to make the process of graduation or building up a slow one. If you use Shorthorns, a medium-sized, compact bull will be most likely to prove satisfactory. The greatest improvements have, almost without exception, been made with small males; because the process of improvement is generally one of refinement—getting rid of bone, offal and other waste products. Animals of moderate size, close, blocky and compact, have in all breeds proved most useful as sires. Couple animals that are measurably alike. Some writers even carry this idea so far as to advise the use, first of half, then of three-quarter blood, and then of pure-bred males of the given breeds. There is a common impression that an overvigorous male should not be used on an undersized fe-

male on account of supposed danger in parturition. I am satisfied, from large observation in this matter, that the notion is a mistaken one. The coarse Lincoln and Cotswold sheep have been largely used upon the little Merino ewes of the East, with generally satisfactory results. Clydesdale and Norman horses have been bred to the small and even pony mares of the country, without injury to the mares from this cause.

Allow me just a word in this connection about the general subject of improved stock. The man who commences with a large herd of pure-bred cattle, with little or no experience in their management, is almost sure to fail miserably. The history of breeding shows that the man who succeeds with pure-bred stock is generally the farmer who commenced with a few animals, which were not allowed to interfere with the general farm work. Bates and Booth were great breeders, but they were also good farmers.

### FARMERS SHOULD BE IMPROVERS.

The great improvements in live-stock, the world over, have been made by farmers, not professional breeders. This ought to inspire young farmers, particularly, with courage and energy in the improvement of stock. The young man who starts with a few good cows and a sire, which may also be used in connection with a herd of grade cattle, will in a few years find himself in possession of a herd of cattle that will be a mine of wealth to him, and a constant source of pleasure. I am totally opposed to specialties on the farm. Those men have been most successful who have carried on several branches of farming in connection.

In conclusion, it seems appropriate to say that the great work now being done in your State Agricultural College should embrace instruction of the practical sort in all that pertains to the breeding and management of domesticated animals. To this end, it should be equipped with the best specimens of the different breeds of cattle, sheep and swine, so that every student has the daily opportunities for study and comparison which are enjoined in other departments of the University. I expect much from your Agricultural College in the way of disseminating correct views among the farmers of the State, in the breeding and management of live stock. It is for the farmers of Missouri to see that the College is amply equipped for the great work which sooner or later is certain to be demanded of it.

The address called forth an interesting discussion.

## A DICTIONARY GIVEN AWAY.

### LIPPINCOTT'S MONTHLY MAGAZINE,

*A Popular Journal of General Literature.*

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# THE INDUSTRIALIST.

SATURDAY, MAY 22, 1886.

## CALENDAR.

1885-86.

FALL TERM.—Sept. 10th to Dec. 18th.  
WINTER TERM.—Jan. 5th to Mar. 26th.  
SPRING TERM.—Mar. 29th to June 9th.  
June 9th, Commencement.

Persons receiving the "Industrialist" need have no fear of bills to come; for the paper always stops with the expiration of subscriptions, unless continued by favor of a friend or of the College.

## BONDS WANTED.

School District bonds issued on College blanks will bring their par value at once. Address T. P. Moore, Holton, Jackson Co., the College Loan Commissioner.

Mr. Thom, "mine host" of the Commercial House, Minneapolis, Kansas, took in the sights on the Hill on Thursday.

A considerable package of Higgin's celebrated dairy salt came by express on Thursday from some person or persons whose name has not yet transpired.

Prof. Cowgill's class in engineering has been kept busy for some weeks in the preparation of theses covering topics embraced in the term's work. The class is credited with very strong work in this line.

The Librarian acknowledges the receipt of reports of the State Superintendents of Indiana, Illinois, Iowa, Missouri, Colorado, and the last six, for completing a set, of the State Superintendent of Michigan.

A valuable addition was made to the Library this week in the shape of a Cyclopaedia of Chemistry, Chambers's Book of Days and Thomas's Dictionary of Biography, from the well-known publishing house of J. B. Lippincott Co.

The Mechanical Department has just finished two black walnut show cases, and the young ladies of the Sewing Department have filled them with choice specimens of their needlework. These cases and their contents are now on exhibition in Mrs. Winchip's office, and are a part of the general College exhibit under preparation for the meeting of the National Educational Association, to be held at Topeka in July next.

A recent letter from one of the three Richmond boys, students here of long, long ago, tells us that the boys now live at Wichita, where they "are using" their "industrial College education to some profit," as C. S. Richmond tells us. Irving Richmond is a contractor and President of the Union Stock Yards Company, of Wichita. G. A. runs a dairy, capacity forty-five gallons per day; while C. S. is in the nursery business. This State of Kansas, we beg to remark, is pretty well peppered with boys and girls who are using their "industrial College education to some profit."

Mrs. Fairchild, Mrs. Kedzie, Mrs. Kellerman, Mrs. Cowgill and Mrs. Hofer, (Why, in the name of Richard Grant White and Noah Webster, can't we have some word besides the Frenchy *Mesdames* that will do duty as the plural of *Mrs?*), were the "College ladies" who attended the Junction City meeting, banquet, etc., of the Domestic Science Clubs on Wednesday. All agree that they got right royal treatment at the hands of the Junction City ladies. We know from personal experience that when the Junction folks set out to do anything in the entertainment line, they go further and stronger than the people of any other community we ever heard of.

The following is the order of exercises for Commencement week:

Thursday, June 3d.—Annual address before the Webster Society, by Mr. Sam Kimble, at 8 o'clock P. M.

Sunday, June 6th.—Baccalaureate Sermon, by President Fairchild, at 4 o'clock P. M.

Monday, June 7th.—Examinations; Class Day exercises at 4 o'clock P. M.; Undergraduates' exhibition at 8 P. M.

Tuesday, June 8th.—Examinations; cattle sale at 1 o'clock P. M.; annual address at 8 P. M.

Wednesday, June 9th.—Graduating exercises at 10 o'clock A. M.; military drill at 4 o'clock P. M.

Some few weeks ago a movement originated in the Faculty looking to securing for President Fairchild a life directorship in the National Educational Association of which our President has long been an honored and efficient officer. The constitution of the Association provides that any association, as, for instance, college faculty, school board or city council, may, on payment of \$20, name one person as a life member of the Association, or by the payment of \$100, a life directorship is placed at the disposal of such nominating body. Well, to abbreviate a short story, the \$100 in this particular case was raised in a very short time, students and teachers contributing to the fund with rare enthusiasm and unanimity. The certificate was received from the Treasurer of the Association some days ago, and formally presented to the President at the sociable on Thursday evening.

We stepped into Mrs. Winchip's busy workshop yesterday with the avowed purpose of taking some notes for the benefit of the *INDUSTRIALIST* readers, but before we had looked about us ten minutes, we gave up the task in despair. What we saw was an immensity of feminine toggery about which such names as tucks and pleats and biases are in our mind associated in inextricable confusion; and we left with a tolerably strong bias in favor of our Sewing Department. Mrs. Winchip tells us that there will be an exhibition of the work of the Department during the term, including the exhibit to be made at the forthcoming meeting of the National Educational Association, (which includes, by the way, *patched* garments) and the dresses of the young lady graduates, on Monday and Tuesday of Commencement week. The Sewing Department will have a house full of admiring visitors on these days.

The College sociable, held on Thursday evening, was, in its "literary" aspects at least, a marked departure from previous practices in this line. Aside from the sociabilities proper to the occasion, there were formal presentations to President Fairchild of the certificate of life directorship in the National Educational Association, and the presentation of a silk banner by the young ladies of the Sewing Department to the College cadets. Prof. Popeno, as master of ceremonies, introduced the different exercises with appropriate, suggestive headlines. The presentation of the life directorship was made by Prof. Shelton in behalf of the Faculty and students. President Fairchild replied to this in a speech full of feeling, and abounding in those lofty sentiments which characterize the man. We fully agree with the half dozen whom we heard express the opinion that this was one of the happiest and most eloquent of President Fairchild's efforts. The presentation of the flag was made by a large company of young ladies who marched through the Chapel to the rostrum, bearing the banner aloft and singing "The Star Spangled Banner." Miss Lucy VanZile made the formal presentation, and Mr. John Higinbotham accepted the gift in an appropriate speech. The cadets gave the ladies of the Sewing Department three rousing cheers, which brought to a close the programme of the evening. The sociable proper came to an end at ten sharp, when the large company present dispersed as quietly as they had assembled.

## COLLEGE SOCIETIES.

ALPHA BETA.—Chartered, December 26th, 1870. Meets in the Society Hall every Friday at 2:30 P. M. Ladies admitted. New students cordially invited to attend.

MISS IDA QUINBY, President.  
J. W. VANDEVENTER, Secretary.

WEBSTER.—Chartered, January 1871. Meets in Society Hall every Saturday evening. Visitors, especially students, always welcome.

C. M. BRESEE, President.  
W. J. BURTIS, Secretary.

SCIENTIFIC CLUB.—Meets on first Friday evening of each month. Composed of members of the Faculty and advanced students. Devoted to the improvement of its members in general scientific knowledge, and the encouragement of original investigations.

PROF. WALTERS, President.

MRS. KEDZIE, Secretary.

HAMILTON.—Chartered January 29th, 1885. Meets every Saturday evening. Admits gentlemen only. Visitors always welcome.

N. E. LEWIS, President.

A. WALTERS, Secretary.

The Y. M. C. A. meets at 3:30 P. M. Sunday.

C. A. MURPHY, President.

L. B. PARKER, Secretary.

The Y. W. C. A. meets Tuesday afternoon.

NELLIE COTTRELL, President.

LORA WATERS, Secretary.

## REPORTS.

SOCIETY HALL, May 15th, 1886.

The Webster Society was called to order at 8 P. M. by President Breese. I. R. Miller led in prayer. Debate, question, "Resolved, That Ireland should be made free." W. H. Olin and L. D. Buenting were successful in sustaining the affirmative of the question, against the negative presented by E. T. Martin and D. R. Summerville. A. A. Sebring read a selection, "Common Sense and Taste;" W. S. Hoyt delivered a declamation, "The Prediction of an Eclipse." After recess, the following discussions were presented: "The State Penitentiary," M. Terwilliger; "The Life of Charles Sumner," P. S. Creager. W. J. B.

SOCIETY HALL, May 15th, 1886.

President Lewis called the Hamilton Society to order. G. W. Waters led the Society in devotion. The programme of the evening was then taken up and carried through with energy. Messrs. Brown, Forsyth, Hammerli and O'Harrow engaged in debating the question, "Resolved, That prohibition has done more harm than good throughout the United States." A negative decision was given by the judges. After recess the Society had the pleasure of listening to an interesting essay by Mr. Wyatt, an oration by E. H. Perry, and select reading by S. L. Ellis. Mr. Hammerli sang a German song, A. Walters at the organ. Instead of debate, the Society decided to have a mock trial at next session. C. A. C.

SOCIETY HALL, May 21st, 1886.

The Alpha Beta Society was called to order at 2:30 P. M. schedule time by President Quinby. Vice-President Working was called to the chair. The "special programme" opened with music—a quartette by Misses Hopper and Little and Messrs. Jones and Wright. Miss Willard offered prayer. Roll-call found forty-eight Alpha Betas present. Miss Lillie Bridgman gave one of her inimitable readings. A quartette, composed of Misses Quinby Hopper, Little and Brown, sang of "The College Beautiful." Miss Blanche Thompson read a carefully-prepared paper on "College Libraries." A solo of the comic order by H. A. Platt was next in order. Another solo and chorus, by Messrs. Jones, Parker, Wright and Parker, followed. A. G. Rogers presented the *Gleaner*. A solo by Miss Nellie Cottrell followed. A brief sketch of Oberlin College by H. A. Platt came next. Then the celebrated Transmogrifique Troupe, under the leadership of L. B. Parker, entertained us with a number of musical performances, which called forth hearty applause from the audience. This closed the programme, and the Society adjourned. NEMO.

## Required Industrials.

The need of general training of youth to some degree of dexterity in the every-day work of life, is recognized everywhere nowadays. In this College, each young man spends time enough in the Carpenter Shop to learn how to use the common tools with ease, and do plain work with some idea of exactness. He also gives hours enough to farm and gar-

den work to have clear notions of what they involve, and interest in the success or failure of varieties and methods. Each finds his critical spirit in such matters strengthened by test of his own abilities and judgment in everyday experience. These occupy one term of each year of the course prior to the fourth.

The young women find a similar provision for their familiarity with every-day affairs in the requirement of one hour a day for one term of the first year, in sewing adapted to their advancement, and in the practice in cooking and dairying required during two terms of the second year. Nimble fingers with the needle may not serve the same purposes as before the sewing-machine snatched the long seams out of the hands of the women; but the ready judgment and taste that make the beauty and comfort of dress are gained only by handling, with careful instruction, the tools that are employed about dress. In the same way, the tact of house-keeping comes by practice under tuition far more readily than under the sharp raps of chagrin and dyspepsia from sour bread, heavy cake and badly-cooked meats.

The required industrials of the course will have served their purpose well in such ways, even if they do not pave the way to skill in these universal arts.

## MANHATTAN CARDS.

George Firestone. Livery, Feed and Sale stable. East end of Poyntz Avenue.

Burgoyne's Photograph Gallery. Established, 1859. Opposite Purcell's Bank.

Clotier. Wm. Knostman, Ready-made Clothing, Hats, Caps, and Gents Furnishing Goods. Opposite postoffice.

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Allen Bros. Opposite the Postoffice, keep a full line of Groceries, Flour, Fruits, Candies, Nuts, etc. Their goods are fresh and first-class, and prices are low and Goods delivered free in any part of the city and on College Hill. We invite all to call, and we will endeavor to give satisfaction.

Manhattan Bank. E. B. Purcell, banker. J. W. Webb, cashier. A general banking business transacted. Bills of Exchange issued on all principal cities and towns of Europe. All collections have personal, faithful and prompt attention of our attorneys. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

E. B. Purcell. Corner of Poyntz Avenue and Second St., has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, &c., &c., &c. Goods delivered in all parts of the city, and at the College, free of charge.

## Joint Public Sale.

MANHATTAN, KANSAS, JUNE 8th, 1886.

(The day before College Commencement.)

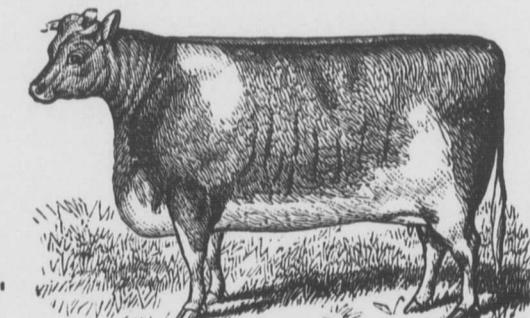
## SHORTHORN, JERSEY

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The Shorthorns are from the well-known herds of the College Farm and Messrs. Bill & Burnham, including the following noted strains with others: **Torr-Booth**, **Fidgets** (Bell-Bates), **Rose of Sharons**, **Young Marys** (Grace Young), and **Cambridges**. The Jerseys are of superior milking stock, recorded, or eligible to record, in the American Jersey Herd-Book.

A choice lot of recorded **Berkshire** and **Poland-China** pigs will be included in the sale.

TERMS.—Five per cent discount to cash purchasers. Six months' time will be given on approved notes, interest at ten per cent.

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MANHATTAN, KANSAS.

### Kansas Educational Notes.

PROF. J. D. WALTERS.

The Trinity Guild of Atchison is practicing the "Mikado."

The High School of Lawrence graduates thirty-five pupils this spring.

The summer term of the Campbell Normal University opens June 8th, and continues eight weeks.

The State Editorial Association will meet at Garden City, Finney county, in the latter part of May.

A mass meeting of music teachers of Kansas was held in Lawrence, May 13th and 14th, for the purpose of effecting a permanent organization, under the name of the Kansas State Music Teachers' Association.

The oldest student in Yale college is Porter Sherman, of Kansas. Mr. Sherman is back at old Yale after an absence of twenty years. He left college before finishing his course, and is now taking the studies of the Senior year. He occupies the same room in a house in New Haven that he did twenty years ago. He is a conspicuous figure about college, and looks more like one of the old professors than a student. Mr. Sherman is well known in this State, having been a prominent teacher and institute conductor for some years. He was for many years superintendent at Wyandotte.—*Lawrence Tribune*.

The following is the programme for commencement of the State University: Friday night, June 4th, annual contest between the Oread and Orophilian societies; Saturday night, oration before the alumni of the Law Department; Sunday night, baccalaureate sermon, Rev. Jas. G. Merrill, of St. Louis; Monday night, contest in oratory and declamation; Tuesday morning, class-day exercises of the graduating class; Tuesday night, address to alumni, J. W. Gleed, Class of '79. Wednesday morning, June 9th, commencement exercises and conferring of degrees. The Senior appointments for commencement day are Frank Hutchings, for the Law Department, and Joseph Currie, Sadie Emery, J. D. McLaren, Olin Templin, Solon Gilmore and H. A. Graham for the Collegiate Department.

The twelfth annual Inter-State Oratorical Contest, held at Lawrence Friday of last week, was a grand success. The nine orators were all fine looking young men, and the orations were uniformly of the highest standard. The judges on thought and composition were: J. B. Angell, President of Michigan University, Judge Cassady, of Wisconsin; Hon. George K. Nash, of Ohio. The judges on delivery were: Hon. Eugene Ware, of Fort Scott; Hon. T. Dwight Thacher, of Topeka; Rev. C. L. Thompson, of Kansas City, Wisconsin, represented by E. C. Ritsher, of Beloit College, was awarded first place, and Ohio, H. H. Russell crator, second place. Mr. Ritsher received a prize of seventy-five dollars and Mr. Russell fifty dollars. The next annual contest will be held at Bloomington, Illinois.

A teacher's duty in every sense is to inculcate good morals in his school. Not that he is required to teach morals as he teaches reading and arithmetic, but it is his duty to correct evil habits, to reform evils that exist in his pupils, to endeavor to build up a healthy sentiment in the community in which he lives. To do this he need not be obtrusive; still water runs deep. The great forces of nature work silently. A word here and there, well timed, will do wonders. He must keep his eyes open at all times. He must smother evil in its incipiency. The noxious work is easily uprooted, when but a tiny plant. The mighty oak which stands the fury of the hurricane uninjured, in its infancy could have been plucked by the babe. It is by looking after the little things of life that men succeed. The little evil habits that spring up in the school room too often pass unheeded, and grow into such magnitude, that they destroy the efficiency and the reputation of the teacher.—*Prof. Heath in Valley Falls New Era*.

#### Expenses.

Tuition is free, and no general fee for incidental or contingent expenses is charged. In a few special departments of instruction, the following payments are made in advance to the Secretary:

In analytical chemistry, the students pay \$3 a term for the chemicals and apparatus used in their laboratory practice and analysis.

In the printing office, young men, in their first year, pay \$3 a term for office expenses. Advanced students have the use of the office for the work performed during the industrial hours.

In telegraphy young men pay \$3 a term for office expenses.

Young women are furnished both printing and telegraphy free of expense, these two offices, with the Sewing and Cooking Departments, being provided especially for their industrial training.

Lessons in instrumental music, two a week, are from \$10 to \$14 per term, according to its length; one a week, \$6 to \$8.40. One half is to be paid to the instructor in charge with the first lesson, the other half at the middle of the term.

The cost of text-books at the book-store is, for the first year about \$4 a term; for the second year, \$2.75; for the third year, \$7.50; and for the fourth year, \$5.50.

Board and washing are not furnished by the College. Board, with furnished room, can be procured in private families at from \$2.75 to \$4 per week. Some students board themselves at even less cost, and rooms for the purpose can be obtained at a rent of from \$1 to \$2.50 a month. Washing costs from \$0.50 to \$1 a dozen pieces.

Ordinary expenditures, aside from clothing and traveling expenses, range from \$100 to \$200 a year.

#### General Duties and Privileges.

General good conduct, such as becomes men and women anywhere, is expected of all. Every student is encouraged in the formation of sound character by both precept and example, and expected "upon honor" to maintain a good repute. Failure to do so is met by a prompt dismissal. No other rules of personal conduct are announced.

Classes are in session every week-day except Saturdays, and no student may be absent without excuse. Students enrolled in any term cannot honorably leave College before the close of the term, unless excused beforehand by the Faculty. A full and permanent record of attendance, scholarship and deportment shows to each student his standing in the College. After each monthly examination a report of advancement is made to parents; and any student, upon leaving College at the close of a term, may receive a certificate of standing.

Chapel exercises occupy fifteen minutes before the meeting of classes each morning, and unnecessary absence from them is noted in the grades.

Twice in each month the whole body of students gather for a lecture from some member of the Faculty, or for the rhetorical exercises of the third and fourth-year classes. On alternate weeks all the classes meet at the same hour, in separate class-rooms, for exercises in elocution and correct expression.

There are three prosperous literary societies, two of them of many years' standing. All meet weekly, in rooms set apart for their use. The *Alpha Beta* is open to both sexes, and holds its meetings Friday afternoons. The *Webster* and the *Hamilton* admit to membership gentlemen only, and meet on Saturday evening.

The Scientific Club, composed of members of the Faculty and students, meets in the Chemical Laboratory on the first Friday evening of each month.

Every Friday evening a students' prayer meeting is held in a College Society Room, led by a member of the Faculty. On the Sabbath students are expected to attend services at least once in the different churches of the city.

Occasionally during each term the College Hall is opened for a social gathering of faculty and students, in which music, literary exercises and friendly greeting find place.

Public lectures by prominent men of the State are provided from time to time, as opportunity offers. All are free.

The Manhattan Horticultural Society meets monthly, and other farmers' associations occasionally, at the College, and the students have the privilege of attending these meetings.

#### Labor.

Every encouragement is given to habits of daily manual labor during the College course. Only the one hour of daily practice in the industrial departments is required; but students are encouraged to make use of other opportunities for adding to their ability and means.

The College employs students, when possible, on the farm and in the gardens, shops and offices, paying wages varying in rate with accomplishment from eight to ten cents an hour.

All labor at the College is under the direction of the Superintendents of the departments, and offers opportunity for increasing skill and efficiency. In regular weekly statements, the students are required to observe business forms and principles, showing from their daily account when and where the work was performed. A few students who have shown especial efficiency are employed during the summer vacation.

The shops and offices are open afternoon and Saturdays for the accommodation of skilled students in work for their own advantage. Every where the student who works wins respect; and it is a matter of pride to earn one's way as far as possible.

#### Earnings.

The labor of the students in the industrial departments is principally a part of their education, and is not paid for unless the student is employed—outside of required hours of labor—upon work for the profit of the College. Students are so employed upon the farm, in the gardens or the shops, and about the buildings. The labor is paid for at rates, varying with service rendered, from eight to ten cents an hour. The Superintendents strive to adjust their work to the necessities of students, and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly pay-roll for the past year ranges from \$377 to \$456.

Many students obtain work in the city or upon neighboring farms, and so pay a part of their expenses. Students employed in the shops are allowed to work somewhat for their own profit, in the manufacture of articles for sale and use. In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide by earnings outside of term-time, or from other sources, for the larger part of their expenses. The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education if he has the ability to use his chances well.

#### Grounds and Buildings.

The farms, with the stock, orchards, gardens, vineyards, forestry and ornamental grounds, are used for experiment and illustration. All that is not strictly experimental is managed with a view to highest economy and profit.

On the larger of the farms, upon an elevation at the western limits of the city of Manhattan, and facing toward the city, are the College buildings. All are of the famed Manhattan limestone, and surrounded by pleasantly-arranged and planted grounds.

College, 130 by 250 feet in extreme dimensions, arranged in three distinct structures, with connecting corridors. This building contains in its two stories and basement, offices, cloak-rooms, studies, chapel, library, reading room, model kitchen and dairy, sewing rooms, society rooms and ten class rooms.

Chemical Laboratory, one story, 36 by 99 and 46 by 75 feet of floor space, in form of a cross. It contains eight rooms, occupied by the Department of Chemistry and Mineralogy.

Mechanics' Hall, 39 by 103 feet, of two stories, occupied by the Carpenter shop and finishing room, Telegraph and Printing offices, and Music rooms.

Horticultural Hall, 32 by 80 feet, one story and cellar, having cabinet room, class room, work room and storage, with greenhouse attached.

Two stone dwellings, occupied by the President and the Professor of Agriculture.

Armory Hall, 46 by 96 feet, and two stories. This building, which has served many purposes, is now to be fitted for armory and drill room below, and for class room, laboratory and museum of the Department of Natural History.

The barn is of stone, 48 by 96 feet, with sidehill basement stables, granary, tool-room, etc.

The blacksmith shop, piggery, implement shed, and various out-buildings are, of wood.

#### Industrial Arts.

**Industrial Arts.**—The training in these departments is designed to be systematic and complete in each, so that any student, following a single line diligently through a whole four-years' course, gains the essentials of a trade and a reasonable degree of skill. Those who wish only a general acquaintance with the arts can take shorter courses in several of them; but all are to select with definite purpose. In the established course, young men are required to take the regular term in the carpenter shop and on the farm and gardens whatever the industrial chosen. Young women are required to take one term in the kitchen laboratory and one in the dairy, though other industrials may occupy their course.

**Dairying.**—During the spring term, daily in structure and practice in the different branches of dairying is given the ladies of the second year by the Instructor in Household Economy. A dairy, well equipped in modern appliances for the manufacture of butter and cheese, is connected with the Department of Household Economy. Here the regular dairy work is supplemented by a short course of lectures intended to explain the best practices in the art of butter and cheese making, and to give the reason therefor. The following topics cover, in the main, the instruction given in the class: Influence affecting the quality and quantity of milk; butter making; the household and factory system of cheese making. Creameries: "deep" and "shallow" setting system; packing and preserving butter.

**Agriculture and Horticulture** are required of young men as industrials during one term of the second year and one term of the third year. In these, practice is made to illustrate and emphasize the teaching, and covers essentially the same ground.

**Carpentry, etc.**—On entering the shops, all take the same first lessons in sawing, planing and dressing lumber, making mortises, tenons

and joints, and in general use and care of tools. Later, one who chooses a trade is provided with work directly in the line chosen; while the farmer's course provides for general training in a great variety of operations, rather for ingenuity than skill. In the full course of a carpenter, special instructions are given in the whole range of work, from framing to stair building. Carpentry is required of young men during one term of the first year.

In iron work, instruction is given in ordinary work, —forging, filing, tempering, etc.

**Printing.**—Two courses are pursued in this art. In one the student is taught the implements or tools employed in typography, and how to use them; composition; imposition; correcting proof; technical terms; presses and their workings; and the general duties of a first-class workman. Everyone is encouraged in studying the rise and progress of printing and related arts. Habits of accuracy and thoroughness are required in order to advancement. The second course of lessons, alternating with those of the first, embraces instruction in spelling, capitalization, syllabication, punctuation, proof-reading, preparation and criticism of essays, and such other work as will make the student accurate and expert in language. Wilson's Punctuation is the text-book; but much of the instruction is oral, such as grows out of the every-day experience of the office.

Admirable drill is furnished by the INDUSTRIALISTS to all, but especially to those who take the full course. The printing which the departments of the College require gives to the advanced student a fair knowledge of the principles and practice of job work.

**Telegraphy.**—The course of training involves for beginners the characters that compose the alphabet, and combinations of these characters into words and sentences—attention being paid to spelling and to short and precise expressions in messages,—abbreviations, signals, forms of messages, train orders, reports etc. To the more advanced is given regular line business, as press reports, messages, cipher messages, and orders in all forms used by prominent telegraph companies, together with the necessary book-keeping, upon exact copies of the blanks in actual use, thus giving the students an understanding of the work of an operator. A portion of the time is devoted to instruction in the management of lines, batteries, instruments, etc. The elementary principles of electricity, magnetism and electro-magnetism, involved in telegraphy, are taught and illustrated by experiments. The more recent inventions related to the art are discussed and explained. Pope's Handbook of the telegraph is used as a text-book.

**Sewing.**—Young ladies are taught in all ordinary forms of sewing with needle and machine, and in cutting, fitting and trimming dresses and other garments. A straight-line system of cutting and fitting is taught, and systems are furnished to students at wholesale rates. They may furnish materials, and work for their own advantage during the hour of practice, under the direction of the Superintendent.

**Instrumental Music.**—Provision is made for the teaching of music upon instruments of all sorts. A full course upon the organ or piano extends over four years, including harmony and composition; but students may take lessons for a single term if they choose. The College furnishes the instruments for daily practice, but the instruction is paid for at usual rates.

#### General Course of Study.

Each student is expected to take three studies besides one hour's practice in an industrial art; and variation from this rule can be only with consent of the Faculty.

Parallel courses are offered to both sexes with such differences as their necessities seem to call for. The following gives the general scope of the two; but fuller explanations are found in the annual catalogue.

FIRST YEAR	FALL TERM.	Arithmetic. English Analysis. Geometrical Drawing.
	WINTER TERM.	Book-keeping, Drawing. English Structure. United States History.
	SPRING TERM.	Algebra. English Composition. Botany.
SECOND YEAR	FALL TERM.	Algebra completed. Elementary Chemistry. Horticulture. 14 Lectures in Military Science.
	WINTER TERM.	Geometry. Practical Agriculture or Household Economy. Organic Chem. and Mineralogy. 12 Lectures in Military Science.
	SPRING TERM.	Geometry completed, 5 weeks. Drawing, 5 weeks. Entomology. Analytical Chemistry.
THIRD YEAR	FALL TERM.	Trigonometry and Surveying. Physiology. General History.
	WINTER TERM.	Mechanics. Agricultural Chemistry. Rhetoric.
	SPRING TERM.	Civil Engineering. Drawing, (or Hygiene). Chemical Physics. English Literature.
FOURTH YEAR	FALL TERM.	Agriculture or Literature. Meteorology. Psychology.
	WINTER TERM.	Logic, Deductive and Inductive Zoology. Structural Botany.
	SPRING TERM.	Geology. United States Constitution. Political Economy.

# THE INDUSTRIALIST.

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KANSAS STATE AGRICULTURAL COLLEGE.

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## KANSAS STATE AGRICULTURAL COLLEGE.

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### COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

College Lands and all business connected with their sale are in charge of the Land Agent.

Bills against the College should be presented monthly, and, when audited, are paid from the office of the Treasurer, in Manhattan.

All Payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka.

The INDUSTRIALIST may be addressed through Prof. E. M. Shelton, Managing Editor. Subscriptions are received by Supt. Geo. F. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Kellerman, chairman of the committee on Museums.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding places, etc.,—may be obtained at the office of the President or by letter.

### 'German Carp in Kansas.

Our experience with the above variety of fish began March, 1882, by getting twenty of the Government. We have now some seven ponds, containing two acres or more surface in all. We have the three varieties of German carp, namely, Full Scale, Mirror and Weather, and breed them in separate ponds, but cannot say which, if either, variety possesses more advantages than the other.

Our first carp spawned June 15th, 1883, at two years of age. The next year, 1884, June 11th, at three years old, they spawned. Last year, 1885, we had them spawn May 7th. This year, 1886, two spawned April 20th. Eggs hatching April 23d, three days after being deposited.

As to the time it takes the eggs to hatch, they have hatched with us in forty hours, and been eleven days in hatching. The average time has been about three days, and that is the time it takes now, May 8th, with the present temperature of water.

Spawning age of the Scale Carp in 1883, one spawned at two years old. Two of said fish were female, each twenty inches long. One did not spawn until three years old.

In the spring of 1884 we placed twenty-two-year-old carp, weighing from two and one half to five pounds each, in a pond, expecting an abundant product in the way of young carp; but to our disappointment, not one of that lot spawned, but at three years old the same fish deposited millions of eggs.

We have two-year-old fish spawning now. Our experience would indicate that at a year old carp in Kansas do not spawn. A small portion may be expected to spawn at two years, and at three years a full spawning may be expected.

As to the number raised for spawners, we have had it not to exceed fifty in one instance, and in another 1500. This by actual count when the fish were from four to ten inches long.

Our hatch this spring, or for the first spring of the season, has been better than we have ever had it.

When ponds are well stocked, it is probable they will keep up the supply without much attention to propagation, but when, as was in our case, a supply is to be raised from twenty, one-inch fish (only three of which arrived at maturity), we are satisfied that artificial propagation must be resorted to; and the cheapest device is one of our own, which consists of a box made of say twelve-inch boards, six feet or more long, flaring, or wider at the top than the bottom, the bottom made of cheese cloth or some cheap muslin, taking care to have lath nailed across before putting on the cloth bottom, which is to keep the cloth from rising to the surface of the water. Placing the above-described box in the pond, it will sink about half the width of the boards, but can be weighted down to any desired depth. Place the eggs, which may be collected along the edges of the pond at spawning, in said box, where they will soon hatch, and by the time the cloth bottom of the box is rotted, which will be in ten or fifteen days, the fish will be large enough to take care of themselves. A box similar, but with wire cloth for the bottom, would be more durable.

In regard to sex, our carp have proved to be about one fourth male and three fourths female.

The carp has generally been considered not a game fish. Well, we have a pond stocked with carp, croppie and black bass, together with a bountiful supply of creek minnows. In fishing for bass, with live minnows for bait, we have oftener caught carp than bass. I should say we have caught not less than fifty carp this spring in that way, and this in the presence of our neighbors, and in some instances that of old fishermen. The astonishment of the latter can readily be imagined but not described.—O. Edward, in Atchison Champion.

### Workingmen and the Public Lands.

It is better to be the contented owner of a farm than a discontented carpenter or mason. Therefore we have advised laboring men in congested manufacturing districts to claim their one hundred and sixty acres of land and seek independence in a new field. When competition is so close that it is hard to get a living, this way out of the difficulty is provided. And to our free American citizens, who like to be their own masters, it is a good way out. They need not fall into a chronic state of restlessness, or resort to violence, in order to rearrange their relations with capital, for here is the open door, on the other side of which are arable lands to be had for the asking, waiting for the plow, and sure to be generous in crops.

But, asks one correspondent, how is the poor man to get to Colorado or Kansas? He lives from hand to mouth, and family expenses eat up every dollar he can earn. Well, if that be so, his case is hard, and it is evident he must make a desperate effort to do something different and better. We must answer his question by asking another, namely, How does the Irish, German or Swedish laborer get to America and half way across the continent to his future home in the West? He works a little harder or longer with this object in view, he saves his money penny by penny, determined to win independence, and willingly deprives himself of pleasures and comforts because he wants to get away from a life that represses and depresses, into a new life in which he will entirely own himself. Where there is a will there is always a way.

Another correspondent asks if the Government could not be induced to lend a helping hand. To this our quick answer is that, in our judgment, it would be a very bad move. Everything that can be should be left to private enterprise. The Government is not a charitable institution. When it gives a clear title to a farm it does quite enough. To ask for more would be to humiliate ourselves. American citizens have a common right to the land, but the moment the Government gives a plow or a horse or lends money, it goes too far. We are all able to take care of ourselves, and we never need or wish help of that kind. We are a thriving, industrious people, with infinite resources; and if the Government will protect us in our rights, we will ask nothing more. It might be competent and proper, however, for the Knights of Labor to devise some practical measures of assistance. They could appoint a bureau of select farms in eligible localities, and thus save applicants from unnecessary trouble and expense. They might be guide, philosopher and friend to those who require their services, and make it easy for the workingmen in districts where competition prevails to establish themselves on Western farms.—New York Herald.

EDWARD ATKINSON shows, in the last number of *Bradstreet's*, that in each 1000 workers in the United States, only 100 are engaged in occupations upon whom an eight-hour law could be enforced, and that consequently the passage of such a law would simply operate to depress the trades upon which it could be enforced, relatively to all other trades. In the first place, agricultural labor, cattle and sheep-growing, horticulture and fishing could not be subjected to an eight-hour law, and if they could be it would ruin them. Blast furnaces, gas works, bakeries, restaurants, and all other employments requiring continuous heat, could not be subjected to an eight-hour rule without instant destruction. Paper mills require continuous operation. So also do railroads. Then there are the great multitude of employments that the officers of the law can never reach, or know anything about,—the people who work at home, such as seamstresses, washerwomen,

en, carpenters, blacksmiths,—in short, everybody who is his own employer. The only trades that could be reached are those in which large numbers of workers are collected for the purpose of attending machinery, such as cotton and woolen mills, rolling mills, boot and shoe factories, and the like. These number not one in ten of the people of the United States who work with their hands. As to these, Mr. Atkinson says with his usual penetration:

"If the advocates of an eight-hour law should get it passed, the first efforts of the same men who had promoted it would be to find out how to work overtime to the best advantage in order to gain better subsistence. The logical result of all such acts by which the free conduct of adults is restricted in certain specific cases is to limit the full use of labor-saving machinery, and thus lengthen the necessary hours of work of the great mass of people."—The Nation.

HAS the product produced by a slovenly woman, milking a dirty, half-starved cow, in a greasy pail, using a greasy milkpan covered with flies and their trademarks, churned in a dirty kitchen, washed with unclean, hands and packed in moldy tubs, and covered with an old shirt-flap,—ever been named?—Midland Farmer.

### Our Exchanges.

The summer of 1886 will see Kansas pretty well settled up. It will see the sun go down on the evening of the free lands in Kansas. It will see the central part of the State in a fair way to rival the eastern portion in wealth and business. It will see now barren prairies transformed into green fields of waving grain. It will see the thousands of acres of choice lands which are now held by the railroad companies and speculators, pass into the hands of farmer-men who will till the soil and develop the resources of the country. It will see churches, school-houses and residences built all over the prairies.—Leavenworth Times.

During a slight hail storm in Wichita last week, the clerk of a hotel noticed quite a crowd watching the storm from the hotel office; and thinking to have a little fun on his own hook, he slid into the dining room, selected a chunk of ice about the size of a man's head from the refrigerator, chipped off the corners with a hatchet so as to give it a spherical form, and, running up stairs, he leaned over the balcony during a brisk fall of hail and fired the deceptive chunk of ice into the office window. There are now a number of Wichita people who are prepared to swear by the great horn-spoon that hail stones fell in great profusion on that occasion as large as Kansas pumpkins.—Kansas Lyre.

We were at Calvert a few days since, and stopped at the residence of C. D. Bieber, one of the pioneers. He has a well-improved farm and an orchard that in a few years will supply him with fruits of all kinds. He is an enthusiastic advocate of the raising of alfalfa clover, and has a fine field, which we were pleased to examine. This is undoubtedly the coming grass crop of this county, and its adoption will become general in a few years. It has been grown successfully for the past eight or nine years in that locality, producing two and often three cuttings each season, besides furnishing several months of excellent pasture, an acre being sufficient for the support of at least four head of cattle. An average of two tons per acre is furnished at each cutting, and the feed is excellent, being especially adapted to producing the best yield of all kinds of dairying products. It is perennial in its nature, this being the fourth season for the crop we examined, and it seems to grow better from year to year. Stock prefer it, we are told, to blue grass, which is being planted by many and which is giving good satisfaction wherever tried.—Norton Courier.

## THE INDUSTRIALIST.

SATURDAY, MAY 29, 1886.

EDITED BY THE FACULTY.  
E. M. SHELTON, MANAGING EDITOR.

### The Reed Organ.

This instrument, scarcely a quarter of a century old, is already a most formidable rival of the piano, which dates its birth to the beginning of the last century. While it can never fill the place of the latter, it has its points of superiority even over that justly popular instrument, and will ever continue to grow in popularity.

The free reed has long been in use. The Chinese claim to have used it about 500 B. C.; but not until the beginning of the present century has it been used in anything like the manner in which it is now.

Orgues expressives, France, 1811; seraphine, England, 1839; harmonium, France, 1840; and melodeon, U. S., 1843 or 1844,—are the names, places and dates of the forerunners of the organ. The present organs made their appearance some twelve or fifteen years later. The United States takes the lead in the manufacture of these instruments, and our organs find their way to all quarters of the globe.

The reedy and wheezy sound of the melodeon has given way to a smooth, rich tone in the organ. Instead of a single set of reeds, from two to seven or more are now used, the different sets being voiced to produce various qualities of tone. This is effected by bending the reeds, difference in size, etc.

Instead of forcing the air through the reeds, as was the case in former instruments of this class up to the time of the melodeon, it is drawn through; hence we never pump wind into the organ, as many suppose, but at every pressure on the blow-pedals the air is drawn out of the bellows and the air-tight space at its top. When a key is pressed, a valve is opened below the reed, which is placed over a slot in the air chamber, the air rushes in to fill the partial vacuum, and in its course passes through the reed, causing it to vibrate. The different sets of reeds can be used singly or in combination, thus giving variety in tone. With the same amount of pressure on the bellows, the tone of the reed is always the same—never louder, never softer. The reed block is covered by a strip of wood, which prevents the free egress of the sound, and this softens or muffles the tone. This strip can be raised by means of the knee-swell. When open, it permits the free passage of the sound, and the tone appears louder. Thus we have variety in power. Couplers are used on many organs: these are mechanical arrangements whereby the key an octave above or below the key pressed is made to sound with it, thus doubling the power. It will be readily seen that in this case the upper octave must be defective. In some cases, however, this is a most important stop.

The organ can sustain tones at will. Herein is its chief advantage over the piano, in which the tone is loudest at the instant it is produced, diminishing rapidly in intensity, and soon ceasing altogether. On the piano, variety of tone and power is affected by means of stronger or lighter touch, made in different ways,—stroke from knuckles, middle joint, wrist, arm etc.,—requiring long years of continuous practice and great dexterity of fingers. On the organ the various shades are made by the use of

stops and knee-swells—a much easier way.

It is a mistake to suppose that the organ is adapted to the rendering of slow music only. Rapid passages can be played on it; but much of the music published for the piano should not be attempted; not, however, so much on account of quick passages, but because of skips, arpeggios, etc., which would not sound well on the organ even if well played. One should always select music written expressly for the instrument on which he intends to play.

Many who undertake the study of the piano would do better to learn to play the organ instead, and this for several reasons: it is necessary to devote from two to four hours a day to the practice of the piano for a period of three to five years in order to play it well, and afterward the practice must be kept up continually, or much of what has been gained will soon be lost. Those having but a short time in which to learn to play an instrument should choose the organ instead. Those obliged to work much cannot well keep the fingers in condition to play the piano.

If the fingers are very stiff, or when one is near middle age, before beginning the study of music, the result from a course on the organ will be found more satisfactory.

Here in the West, particularly away from towns, where good tuners cannot always be had, and where time to keep up practice cannot be spared, the organ is by far the preferable instrument.—*Prof. Hofer.*

### The Arkansas River and Its Offspring.

It is almost universally true that the fall of large streams is less rapid than that of their tributaries. In making a preliminary survey from McPherson to Hutchinson a few weeks ago, the engineers of the Rock Island railroad found what seemed to them a remarkable exception to this rule. They reached the Arkansas near the latter place very nearly at right angles to the course this river pursues for about a hundred miles. The Little Arkansas was crossed at ten or twelve miles northeast of the point at which the great Arkansas was intersected. The engineers found the river bed of the larger stream to be seventy-two feet higher than that of the smaller at about equal distances from the junction.

This recalls a survey which was made several years ago in Rice county from the Arkansas at Raymond in an easterly direction to Cow creek, by which sufficient fall was found to afford excellent water-power. In Barton county, the bed of the Arkansas is considerably higher than that of Walnut creek at corresponding points above the mouth of the latter. At Kinsley, in Edwards county, water is led from the Arkansas, used for irrigating purposes, and the remnant is turned into Coon creek, and through this stream finds its way back to the parent stream at considerable distance below. At Garden City irrigating canals are taken from the Arkansas, and by following a line of less rapid descent than that of the river they deliver large quantities of water on the highest lands north of the river. Standing by these flowing canals and looking away to the northeast, one readily sees that the country falls rapidly towards the head of Pawnee fork, which joins the Arkansas at Larued, nearly one hundred miles further east.

It is a remarkable fact that while the Arkansas sometimes ceases to flow above the sandy bed, the above named tributary

streams are constant. In nearly all the country between the Arkansas and these streams unfailing wells are made by digging or boring to a sand and gravel stratum apparently identical with the beds of both the river and its tributaries; and it has long been suspected that the Arkansas, carrying as it does the rains and melted snows from the Rockies and their eastern foothills, spreads out under a vast extent of country, making constant the springs which feed the smaller streams.

While as before stated, the Arkansas, along the upper part of its course at times shows no water above the sand, these periods are neither frequent nor of long duration. It has therefore been proposed to lead its waters across the country to the small streams, which have high banks, and there to establish factories to be driven by water power. The engineering difficulties are by no means serious, and such a development of manufacturing industries is not beyond the range of possibilities. Indeed, a beginning has been made, and mills are thus driven at Hutchinson and at Wichita.—*Prof. Cowgill.*

### Air Line Railroads.

In hilly countries the selection of a route for a railroad requires great ingenuity and no little judgment on the part of the locating engineer. In mountainous countries the obstacles reach their maximum, and the astonishment of the world at some of the achievements of modern engineering is unabated. The earlier railroads that traversed the State of Kansas were granted thousands of acres of land for every mile of road bed. Competition was not then a factor of much importance. These roads then had little incentive to seek short or direct routes, and they went around many obstacles of inferior moment.

Railroads are now being projected and built into and through the State with marvelous rapidity. No longer are the river valleys considered the only part of the State capable of furnishing traffic. Competition begins to be a factor. The shortest line can carry produce to market more cheaply than any other. Curves and grades are to be avoided as interfering with the attainment of the minimum cost of operation. Engineers are therefore instructed to run air lines regardless of such minor difficulties which would have sent the earlier roads many miles around.

An interesting consideration is the money value at which distance saved in locating is estimated. The elements entering into this calculation are numerous and complex. Suppose the choice is between two routes, one of which is a mile longer than the other, and that they are otherwise equal: the difference against the longer route consists first in the expense of constructing the additional mile; second, the additional expenses of repairs; third, additional expenses of running trains; fourth, the preference of passengers and shippers for the most direct route, even if charges are made equal; fifth, the longer route will usually have more turns, and, therefore, be more destructive to track and rolling stock; and at the same time more liable to accidents.

To reduce all to dollars and cents has required long experience and careful study; the best engineers are, however, pretty well agreed that the advantage of distance saved is to be estimated at \$10 per foot; or, in round numbers, at \$53,000 per mile for main lines, and at seven tenths this amount for branch roads.

It is then easily seen why roads now being located, especially in the southwestern third of the State, are run on air lines. The country is nearly level, or but slightly undulating, over large areas; the trade centers are not established, but are yet to be determined by transportation facilities. The A. T. & S. F. is locating many new lines, and they are all practically air lines. The Missouri Pacific is scarcely less particular to secure direct routes, and the Rock Island engineers are now surveying one of the longest stretches of air line to be found on the continent, with a prospect that it may be prolonged through the Indian Territory and across the staked plains of Texas.—*Prof. Cowgill.*

### The Talkers.

There is frequently a laugh at the person who is called the *talker* of the family; he or she has to be the subject for numerous jokes; and all the fun in the house which is aimed at any one in particular falls on the devoted head of the one who is considered the talkative member. But wouldn't we be a more intelligent people, wouldn't we know more of each other, and be better able to form real opinions of our own and then to express them,—if this "talking" were made something of an art?—if conversation were taught, and young people were helped to become able to use their mother-tongue in a pleasing and profitable way? There are very many of us who, when we meet our friends, are obliged to fall back on the prolific subject of the weather, if we say anything, simply because we haven't the power to put into words just what we think or feel. We, any of us, have thoughts that we would have no hesitancy about expressing at any time if we only had the power of putting them into pleasant sentences; and if one has that power, it is a great gift, for he is nearly always able to be easy in manner, pleasant and entertaining to strangers, and a real comfort in his own home.

There are many people who are naturally timid about using words, to whom the task of talking to a stranger is very burdensome, and who, even among their own friends, feel lost and awkward, because they cannot find something to talk about. If such people had while young some little training in carrying on a conversation, what a help they would find it when they get out in the world where they must carry their share of burdens of every kind, including the seemingly small one of doing the talking! for though often said that *some one* must do it, this isn't true, as every timid person will readily testify. Every child who is encouraged to talk, even though it is sometimes tiresome to answer all the strange questions the busy little brains will originate, grows better able every day he is so encouraged to put his thoughts into proper shape, and to think to a better purpose; for he often becomes able to think, not for himself alone, but to have his thoughts always ready to share with others. Then let not the "talkers" of the world despair, for they are more easily able to acquire an easy conversational power because of the natural ease with which they put their thoughts into words; but let them try always to put only the best they have into words, and so use them that they shall be a comfort, in one way or another, to the listeners. And let those who find it difficult to talk try always to exert themselves to be as easy in conversation as possible, remembering that it is not what we have stored up in the mind that does those about us good so much as it is the knowledge we impart through our speech. Dividing ideas with our neighbors multiplies them for ourselves. Speech is the gift which gives man the greatest advantage over the animals; then let us make of it the most in our power.—*Mrs. Kedzie.*

## THE INDUSTRIALIST.

SATURDAY, MAY 29, 1886.

### CALENDAR.

1885-86.

FALL TERM.—Sept. 10th to Dec. 18th.  
WINTER TERM.—Jan. 5th to Mar. 26th.  
SPRING TERM.—Mar. 29th to June 9th.  
June 9th, Commencement.

Persons receiving the "Industrialist" need have no fear of bills to come; for the paper always stops with the expiration of subscriptions, unless continued by favor of a friend or of the College.

### BONDS WANTED.

School District bonds issued on College blanks will bring their par value at once. Address T. P. Moore, Holton, Jackson Co., the College Loan Commissioner.

The Printing Department owes its thanks to the St. Louis Type Foundry for a neat specimen book and price list.

At the recent convention of music teachers, held at Lawrence, Prof. Hofer was elected one of the Vice-Presidents for this State.

The Library adds to its numbers this week Darwin's *Zoönomia* (2 vols.), an excellent work that can be found only in second-hand stores. Pollard's *Lost Cause* finds place in the alcove of history.

Last week Prof. Failyer took the whole of the third-year class to his home, where a jolly evening was had. This week the Seniors were in like manner "took in" by the President. The older classes seem to be luxuriating.

The sale of pure-bred stock, be it remembered, will be held at the College barn on Tuesday, June 8th, and the trouble will begin promptly at 1:30 p.m. A good restaurant will be in operation on the grounds, and excellent meals will be furnished at low price.

All the indications point to the largest attendance upon the forthcoming exercises of Commencement week ever had here upon a like occasion. From all directions people write they are coming, some to attend the stock sale, some to see the boys and girls launched; but all are coming—sure.

Judge N. C. McFarland, of Topeka, gave us a brief visit on Tuesday. The Judge, who is a judge of Shorthorns as well as politicians, was so well pleased with the College sale herd that he decided at once to be here June 8th and secure some of the good things that will be offered for sale that day.

Mr. Orange Judd, famous as the old-time editor of the *American Agriculturist*, and now the editor of the *Prairie Farmer*, has been the guest of the President during several days of this week. Mr. Judd is writing a series of articles for his paper descriptive of institutions, men and things, in the great West.

From the New Haven, Conn., *Daily Palladium*, we gather that at the annual business meeting of the Corporation of Yale College, held on May 20th, Dr. Samuel W. Williston, a graduate of this College of fourteen years' standing, was elected Assistant Professor of Anatomy in the Medical Department of that College. Thus a great honor comes to a most deserving Kansas boy.

Not much account has been taken of the pigs to be sold at public auction on the occasion of the cattle sale June 8th. We wish to say here that the Poland-Chinas and Berkshires to be offered at that time are an unsurpassed lot of seven to twelve-months-old pigs. We have never had better pigs in breeding or as individuals upon the College Farm than those our friends will have a chance to buy on June 8th.

N. B.—At a recent Faculty meeting it was unanimously resolved that no person under twelve years of age shall hereafter be admitted to any of the exercises of Commencement week—which is, to be interpreted, the Manhattan tender and tough infant alike will be permitted, without interruption from the College Commencement, to stay at home, there to luxuriate in mud pies and the noble game of hookey. City papers please copy.

At such a season as this, when the rains from some inscrutable reason fail to come, and the sun burns and scorches the vitality out of all civilized vegetation, one appreciates the great value of our wild prairie grasses; for while blue-grass and clover, and to some extent orchard-grass, wither and "crinkle up,"

fairly writhing under the power of the blazing sun, the prairie grasses maintain their intense green color, apparently suffering nothing from either heat or lack of moisture.

As illustrating the insane desire of a large class of farmers' sons to abandon the occupation to which they are by nature and education best suited, Mr. Orange Judd told a neat story in the course of his address to the students in Chapel on Friday. He said that recently he inserted a four-line advertisement in three of the principal Chicago dailies, reading something as follows: Wanted—a young farmer who understands business; salary \$5 per week. In reply to this advertisement inserted in only one issue of the three papers, fifteen hundred and forty-three letters were received from boys, in many cases begging for this opportunity to work for rather less than board and clothing.

Col. N. S. Goss has our thanks for a copy of his revised catalogue of the birds of Kansas. Besides the list of birds, which numbers 335 species, and contains full notes on the habits, habitat and comparative frequency of appearance within the State, together with references by number to the other standard works of Baird, Ridgeway, Coues, etc., the book contains a chapter on that pestiferous little beast the "English sparrow;" one on "Protect the Birds;" and an appeal to the women of the country (and city) in behalf of the birds,—all of which make the book an interesting one, regardless of the reader's ability to distinguish a *Hydrochelidon nigra surinamensis* from a *Spizella cunicularia hypogaea*.

The following is the order of exercises for Commencement week:—

Thursday, June 3d.—Annual address before the Webster Society, by Mr. Sam Kimble, at 8 o'clock p.m.

Sunday, June 6th.—Baccalaureate Sermon, by President Fairchild, at 4 o'clock p.m.

Monday, June 7th.—Examinations; Class Day exercises for invited guests at 4 o'clock p.m.; Undergraduates' exhibition at 8 p.m.

Tuesday, June 8th.—Examinations; cattle sale at 1 o'clock p.m.; annual address at 8 p.m.

Wednesday, June 9th.—Graduating exercises at 10 o'clock a.m.; military drill at 4 o'clock p.m.

### A NEW FEATURE.

Among the announcements of Commencement exercises which have reached us from the various colleges throughout the country, is one the programme of which gives the exercises for the third day as "An Auction Sale of Blooded Cattle." This is a new feature in Commencement exercises, and it is perhaps unnecessary to say that the college referred to is our own State Agricultural College. The cattle to be sold were bred on the College Farm and are animals of merit.—*Minneapolis Messenger*.

### COLLEGE SOCIETIES.

ALPHA BETA.—Chartered, December 26th, 1870. Meets in the Society Hall every Friday at 2:30 p.m. Ladies admitted. New students cordially invited to attend.

MISS IDA QUINBY, President.  
J. W. VANDEVENTER, Secretary.

WEBSTER.—Chartered, January 1871. Meets in Society Hall every Saturday evening. Visitors, especially students, always welcome.

C. M. BREESE, President.  
W. J. BURTIS, Secretary.

SCIENTIFIC CLUB.—Meets on first Friday evening of each month. Composed of members of the Faculty and advanced students. Devoted to the improvement of its members in general scientific knowledge, and the encouragement of original investigations.

PROF. WALTERS, President.  
MRS. KEDZIE, Secretary.

HAMILTON.—Chartered January 29th, 1885. Meets every Saturday evening. Admits gentlemen only. Visitors always welcome.

N. E. LEWIS, President.  
A. WALTERS, Secretary.

The Y. M. C. A. meets at 3:30 p.m. Sunday.  
C. A. MURPHY, President.  
L. B. PARKER, Secretary.

The Y. W. C. A. meets Tuesday afternoon.  
NELLIE COTTRELL, President.  
LORA WATERS, Secretary.

### REPORTS.

SOCIETY HALL, May 22, 1886.  
The Webster Society was called to order at 8:10 p.m. by the Secretary. J. E. Payne was called to the chair. I. R. Miller led in prayer. Debate, "Resolved, That the success of man depends more upon his exertion than upon his genius." W. J. Burtis and A. A. Mills affirmed, and J. B. Brown and W. R. Browning denied. The judges gave their de-

cision two to one in favor of the negative. R. N. Waldraven read an essay on the "Life of Peter the Great." The Reporter was presented by W. J. McLaughlin. A. W. Murray gave a discussion on the "Formation of Hills."

W. J. B.

SOCIETY HALL, May 28th, 1886.

Society opened with a duet, "What are the Wild Waves Saying," by Miss Little and J. S. Hazen. A well-written essay on "What is the Object in View?" was presented by O. L. Utter. The question of the pioneer and statesman was discussed by Miss Lora Waters and A. G. Rogers, and Miss Birdie Atwood and L. P. Brous. The judges decided in favor of the pioneer. A good *Gleaner* was edited by A. M. Green. A five-minute recess was followed by a solo and chorus, furnished by J. S. Hazen, committee. Extemporaneous speaking was next indulged in, and after business, the following duties were assigned for the last session of the term: Essay, Lucy VanZile; declamation, Blanche Thompson; debate, Miss Maria Hopper, assisted by C. A. Murphy, and Miss Willard, assisted by L. B. Parker. *Gleaner*, H. A. Platt. Come, all, to our closing session.

Q.

SOCIETY HALL, May 22d, 1886.

At 8 o'clock the President called the Hamilton Society to order. Roll-call by the Secretary. Prayer by E. M. Paddleford. S. S. Cobb, one of our Cherokee members, sung a song in his native tongue; judging from the storm of applause which followed, one would naturally infer that Mr. Cobb's efforts were appreciated. The case of State vs. Newman, for horse stealing, came up next. E. M. Paddleford was appointed judge. The witnesses in the case were all examined and cross-questioned by the attorneys. Mr. Greeley represented the State, and E. H. Perry defended the prisoner. After quite lengthy discussions, the case was submitted to the Court. Judge Paddleford released the prisoner, cautioning him to be careful as to his conduct in the future. The Society then enjoyed a recess of ten minutes. After the assignment of duties and reading of the minutes, the Society adjourned.

### A Good Education Pays.

1. In dollars and cents. All testimony of statistics agrees in showing that educated laborers, of all ranks, have better work and better wages than the uneducated.

2. In influence and position. Careful estimates make it certain that the chances of promotion to places of trust and power among men are almost two hundred times as great to an educated man as to an uneducated.

3. In usefulness. The bulk of good work in the world,—discovery, invention, government, philanthropy and religion,—is brought about by those who learn to think by study.

4. In enjoyment. Our pleasures grow out of what we are ourselves more than from surroundings. A well-trained man sees, hears and handles a great deal more of the world than an untrained one. All things do him good, not so much because he owns them as because he understands them. He always has good things to think about.

### MANHATTAN CARDS.

George Firestone.  
G. Livery, Feed and Sale stable. East end of Poyntz Avenue.

Burgoyne's  
Photograph Gallery. Established, 1859. Opposite Purcell's Bank.

Lothier.  
Wm. Knostman, Ready-made Clothing, Hats, Caps, and Gents Furnishing Goods. Opposite postoffice.

Fox's Book Store.  
COLLEGE TEXT-BOOKS,  
School Stationery, Pencils, Ink, Scratch-books, etc., etc. Manhattan, Kansas.

Barber Shop and Bath Rooms.  
In basement, under Lemmon & Koller's. 12 shaves for \$1.00. None but the best workmen employed.

P. C. HOSTRUP, Proprietor.

Allen Bros.  
Opposite the Postoffice, keep a full line of Groceries, Flour, Fruits, Candies, Nuts, etc. Their goods are fresh and first-class, and prices are low and Goods delivered free in any part of the city and on College Hill. We invite all to call, and we will endeavor to give satisfaction.

Manhattan Bank.  
E. B. Purcell, banker. J. W. Webb, cashier. A general banking business transacted. Bills of Exchange issued on all principal cities and towns of Europe. All collections have personal, faithful and prompt attention of our attorneys. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

E. B. Purcell,  
Corner of Poyntz Avenue and Second St., has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, &c., &c., &c. Goods delivered in all parts of the city, and at the College, free of charge.

### A DICTIONARY GIVEN AWAY.

### LIPPINCOTT'S MONTHLY MAGAZINE,

A Popular Journal of General Literature.

To the person sending us a subscription to the above-named Magazine for the year of 1886, at \$2.00, we will present a copy of

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MANHATTAN, KANSAS, JUNE 8th, 1886.

(The day before College Commencement.)

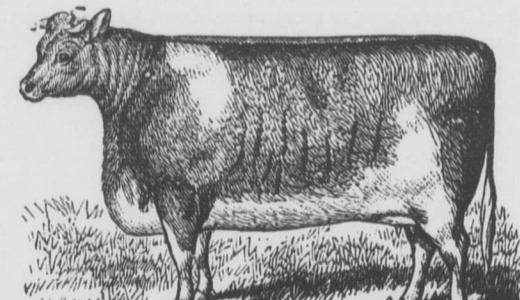
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The Shorthorns are from the well-known herds of the College Farm and Messrs. Bill & Burnham, including the following noted strains with others: *Torr-Booth*, *Fidgets* (Bell-Bates), *Rose of Sharons*, *Young Marys* (Grace Young), and *Cambridges*. The Jerseys are of superior milking stock, recorded, or eligible to record, in the American Jersey Herd-Book.

A choice lot of recorded *Berkshire* and *Poland-China* pigs will be included in the sale.

TERMS.—Five per cent discount to cash purchasers. Six months' time will be given on approved notes, interest at ten per cent.

For catalogues, address the undersigned.

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### Kansas Educational Notes.

PROF. J. D. WALTERS.

An \$8000 school-house is to be erected at Syracuse, Hamilton county.

Fredonia, Wilson county, is to have a new school-house which will cost \$8000.

President J. H. Miller, of Campbell Normal, and State Supt. J. H. Lawhead, of Topeka, represent the Ohio committee of reception at the National Teachers' rally in Topeka, July 13th to 16th. Supt. Lawhead has secured for Ohio headquarters, during the meeting, a large tent. He wishes to hear from every Buckeye teacher in this State, and will furnish at headquarters facilities for a general handshaking of our Ohio teachers with friends from the old home.

The public schools of Alma closed last Friday, but on account of rains the exhibition was postponed until Tuesday night of this week; and from all accounts it was the best entertainment of the kind ever listened to by our people. A small admission fee was charged at the door, which is to be used towards buying supplies for the school room. The building was filled to its utmost capacity, and the programme, although lengthy, was very interesting, and all the pupils participating acquitted themselves with credit. After the completion of the programme, the public, in token of their esteem, presented Prof. Dean with a handsome photograph album and Prof. Buchli and Miss Sweeney each with a copy of poems.—*Enterprise*.

The last of the winter meetings of the Elk County Teachers' Association was held in the public school building at Howard, on Saturday, May 15th. W. B. Brown was chosen chairman of the meeting and C. G. Crawford was appointed secretary. J. A. Baker came forth with a well-written paper, entitled "Grecian Statesmanship." Miss Brainard presented the meeting with an article on "Kindergarten." Prof. Landes read a premium paper on "Public High Schools," which was highly appreciated by all. This was followed by Miss Lizzie New with a short but well-composed paper on "What and How to Teach," which was right to the point, and contained many good thoughts. J. W. McBride read a paper telling "How to Make Pupils Talk." The meeting was well attended.

Supt. McDonald, of Shawnee county, complains of the pernicious practice by many teachers of grading their pupils too liberally. The effect of this evil can hardly be overestimated. If justice was applied without fear or favor in the common schools the relation between many a college professor and his classes would become more amiable. The Superintendent says: "Glancing at the examination papers of many pupils, and finding the percentage usually in the nineties and occasionally at par, one is led to wonder what has become of the poor scholars. There should be in the average school some thirties, forties and fifties, but the inquiring visitor seldom sees them. It is probable that one of two things or both can be given as the cause. Either the teacher, out of the fullness of his heart, has graded too liberally, or he has adroitly adapted the questions to what the pupil remembers concerning a subject, instead of partly directing his attention to what should have been remembered, but has been forgotten. It is not only unkind to the pupil but sinfully wrong to give him a standing which he does not merit. It is a painful sort of surgery, but one of infinite value in the school room to show the pupil precisely what he knows. Give him ninety when he is honestly entitled to but fifty, and you are giving him a false idea of himself, and he goes out into the world puffed up beyond measure, imagining that his standing in the school room will be taken at its face value in any occupation he may choose to enter. The great world tossing him about like a cork in a mill dam, will soon, with inexorable exactness, give him percentages which will astonish and humiliate him, and will cause him to look back upon the sham examinations of his school room with shame and bitterness in his heart. And you, a brother or sister teacher, with your nineties, seventy-fives and hundreds, are responsible for all this, and in the heart of that pupil you will some day be weighed in the balance and found wanting."

### Expenses.

Tuition is free, and no general fee for incidental or contingent expenses is charged. In a few special departments of instruction, the following payments are made in advance to the Secretary:

In analytical chemistry, the students pay \$3 a term for the chemicals and apparatus used in their laboratory practice and analysis.

In the printing office, young men, in their first year, pay \$3 a term for office expenses. Advanced students have the use of the office for the work performed during the industrial hours.

In telegraphy young men pay \$3 a term for office expenses.

Young women are furnished both printing and telegraphy free of expense, these two offices, with the Sewing and Cooking Departments, being provided especially for their industrial training.

Lessons in instrumental music, two a week, are from \$10 to \$14 per term, according to its length; one a week, \$6 to \$8.40. One half is to be paid to the instructor in charge with the first lesson, the other half at the middle of the term.

### Labor.

Every encouragement is given to habits of daily manual labor during the College course. Only the one hour of daily practice in the industrial departments is required; but students are encouraged to make use of other opportunities for adding to their ability and means.

The College employs students, when possible, on the farm and in the gardens, shops and offices, paying wages varying in rate with accomplishment from eight to ten cents an hour.

All labor at the College is under the direction of the Superintendents of the departments, and offers opportunity for increasing skill and efficiency. In regular weekly statements, the students are required to observe business forms and principles, showing from their daily account when and where the work was performed. A few students who have shown especial efficiency are employed during the summer vacation.

The shops and offices are open afternoon and Saturdays for the accommodation of skilled students in work for their own advantage. Everywhere the student who works wins respect; and it is a matter of pride to earn one's way as far as possible.

### Earnings.

The labor of the students in the industrial departments is principally a part of their education, and is not paid for unless the student is employed—outside of required hours of labor—upon work for the profit of the College. Students are so employed upon the farm, in the gardens or the shops, and about the buildings. The labor is paid for at rates, varying with service rendered, from eight to ten cents an hour. The Superintendents strive to adjust their work to the necessities of students, and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly pay-roll for the past year ranges from \$377 to \$456.

Many students obtain work in the city or upon neighboring farms, and so pay a part of their expenses. Students employed in the shops are allowed to work somewhat for their own profit, in the manufacture of articles for sale and use. In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide by earnings outside of term-time, or from other sources, for the larger part of their expenses. The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education if he has the ability to use his chances well.

### Objects.

This College now accomplishes the object of its endowment in several ways.

First, it gives a substantial education to men and women. Such general information and discipline of mind and character as help to make intelligent and useful citizens are offered in all departments, while the students are kept in sympathy with the callings of the people.

Second, it teaches the sciences applied to the various industries of farm, shops and home. Chemistry, botany, entomology, zoölogy and mechanics are made prominent means of education to quick observation and accurate judgment. Careful study of the minerals, plants and animals themselves illustrates and fixes the daily lesson. At the same time, lessons in agriculture and horticulture show the application of science; and both are enforced by actual experiment.

Third, it trains in the elements of the arts themselves, and imparts such skill as to make the hands ready instruments of thoughtful brains. The drill of the shops, gardens, farm and household departments is made a part of a general education to usefulness, and insures a means of living to all who make good use of it. At the same time, it preserves habits of industry and manual exertion, and cultivates a taste for rural and domestic pursuits.

Fourth, it strives to increase our experimental knowledge of agriculture and horticulture. So far as means and circumstances permit, experiments are undertaken with a view to more definite results than ordinary experience can give. By this method the students themselves are trained to a more accurate observation and judgment in these practical tests of principles in farming.

Fifth, it seeks to disseminate such practical truths as have stood the test of scientific inquiry. For this purpose it publishes the *INDUSTRIALIST*; and its officers share in debates and consultations of farmers and horticulturists throughout the State. Each winter a series of six Farmers' Institutes is held in as many different counties of the State. In these the Faculty share with the people in lectures, essays and discussions upon topics of most interest to farmers.

### General Duties and Privileges.

General good conduct, such as becomes men and women anywhere, is expected of all. Every student is encouraged in the formation of sound character by both precept and example, and expected "upon honor" to maintain a good repute. Failure to do so is met by a prompt dismissal. No other rules of personal conduct are announced.

Classes are in session every week-day except Saturdays, and no student may be absent without excuse. Students enrolled in any term cannot honorably leave College before the close of the term, unless excused beforehand by the Faculty. A full and permanent record of attendance, scholarship and deportment shows to each student his standing in the College. After each monthly examination a report of advancement is made to parents; and any student, upon leaving College at the close of a term, may receive a certificate of standing.

Chapel exercises occupy fifteen minutes before the meeting of classes each morning, and unnecessary absence from them is noted in the grades.

Twice in each month the whole body of students gather for a lecture from some member of the Faculty, or for the rhetorical exercises of the third and fourth-year classes. On alternate weeks all the classes meet at the same hour, in separate class-rooms, for exercises in elocution and correct expression.

There are three prosperous literary societies, two of them of many years' standing. All meet weekly, in rooms set apart for their use. The *Alpha Beta* is open to both sexes, and holds its meetings Friday afternoons. The *Webster* and the *Hamilton* admit to membership gentlemen only, and meet on Saturday evening.

The Scientific Club, composed of members of the Faculty and students, meets in the Chemical Laboratory on the first Friday evening of each month.

Every Friday evening a students' prayer meeting is held in a College Society Room, led by a member of the Faculty. On the Sabbath students are expected to attend services at least once in the different churches of the city.

Occasionally during each term the College Hall is opened for a social gathering of faculty and students, in which music, literary exercises and friendly greeting find place.

Public lectures by prominent men of the State are provided from time to time, as opportunity offers. All are free.

The Manhattan Horticultural Society meets monthly, and other farmers' associations occasionally, at the College, and the students have the privilege of attending these meetings.

### Industrial Arts.

*Industrial Arts.*—The training in these departments is designed to be systematic and complete in each, so that any student, following a single line diligently through a whole four-years' course, gains the essentials of a trade and a reasonable degree of skill. Those who wish only a general acquaintance with the arts can take shorter courses in several of them; but all are to select with definite purpose. In the established course, young men are required to take the regular term in the carpenter shop and on the farm and gardens whatever the industrial chosen. Young women are required to take one term in the kitchen laboratory and one in the dairy, though other industrials may occupy their course.

*Dairying.*—During the spring term, daily in instruction and practice in the different branches of dairying is given the ladies of the second year by the Instructor in Household Economy. A dairy, well equipped in modern appliances for the manufacture of butter and cheese, is connected with the Department of Household Economy. Here the regular dairy work is supplemented by a short course of lectures intended to explain the best practices in the art of butter and cheese making, and to give the reason therefor. The following topics cover, in the main, the instruction given in the class: Influence affecting the quality and quantity of milk; butter making; the household and factory system of cheese making. Creameries: "deep" and "shallow" setting system packing and preserving butter.

*Agriculture and Horticulture* are required of young men as industrials during one term of the second year and one term of the third year. In these, practice is made to illustrate and emphasize the teaching, and covers essentially the same ground.

*Carpentry, etc.*—On entering the shops, all take the same first lessons in sawing, planing and dressing lumber, making mortises, tenons

and joints, and in general use and care of tools. Later, one who chooses a trade is provided with work directly in the line chosen; while the farmer's course provides for general training in a great variety of operations, rather for ingenuity than skill. In the full course of a carpenter, special instructions are given in the whole range of work, from framing to stair building. Carpentry is required of young men during one term of the first year.

In iron work, instruction is given in ordinary work,—forging, filing, tempering, etc.

*Printing.*—Two courses are pursued in this art. In one the student is taught the implements or tools employed in typography, and how to use them; composition; imposition; correcting proof; technical terms; presses and their workings; and the general duties of a first-class workman. Everyone is encouraged in studying the rise and progress of printing and related arts. Habits of accuracy and thoroughness are required in order to advancement. The second course of lessons, alternating with those of the first, embraces instruction in spelling, capitalization, syllabication, punctuation, proof-reading, preparation and criticism of essays, and such other work as will make the student accurate and expert in language. Wilson's *Punctuation* is the text-book; but much of the instruction is oral,—such as grows out of the every-day experience of the office.

Admirable drill is furnished by the *INDUSTRIALIST* to all, but especially to those who take the full course. The printing which the departments of the College require gives to the advanced student a fair knowledge of the principles and practice of job work.

*Telegraphy.*—The course of training involves for beginners the characters that compose the alphabet, and combinations of these characters into words and sentences—attention being paid to spelling and to short and precise expressions in messages,—abbreviations, signals, forms of messages, train orders, reports etc. To the more advanced is given regular line business, as press reports, messages, cipher messages, and orders in all forms used by prominent telegraph companies, together with the necessary book-keeping, upon exact copies of the blanks in actual use, thus giving the students an understanding of the work of an operator. A portion of the time is devoted to instruction in the management of lines, batteries, instruments, etc. The elementary principles of electricity, magnetism and electro-magnetism, involved in telegraphy, are taught and illustrated by experiments. The more recent inventions related to the art are discussed and explained. Pope's *Handbook of the Telegraph* is used as a text-book.

*Sewing.*—Young ladies are taught in all ordinary forms of sewing with needle and machine, and in cutting, fitting and trimming dresses and other garments. A straight-line system of cutting and fitting is taught, and systems are furnished to students at wholesale rates. They may furnish materials, and work for their own advantage during the hour of practice, under the direction of the Superintendent.

*Instrumental Music.*—Provision is made for the teaching of music upon instruments of all sorts. A full course upon the organ or piano extends over four years, including harmony and composition; but students may take lessons for a single term if they choose. The College furnishes the instruments for daily practice, but the instruction is paid for at usual rates.

### General Course of Study.

Each student is expected to take three studies besides one hour's practice in an industrial art; and variation from this rule can be only with consent of the Faculty.

Parallel courses are offered to both sexes with such differences as their necessities seem to call for. The following gives the general scope of the two; but fuller explanations are found in the annual catalogue.

FIRST YEAR.	FALL TERM.	Arithmetic.
	WINTER TERM.	English Analysis.
SECOND YEAR.	FALL TERM.	Geometrical Drawing.
	WINTER TERM.	Book-keeping, Drawing.
THIRD YEAR.	FALL TERM.	English Structure.
	WINTER TERM.	United States History.
FOURTH YEAR.	FALL TERM.	Algebra.
	WINTER TERM.	English Composition.

# THE INDUSTRIALIST.

PUBLISHED BY THE PRINTING DEPARTMENT.

KANSAS STATE AGRICULTURAL COLLEGE.

SUBSCRIPTION—50 CTS. A YEAR, 10 CTS. A MONTH.

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No. 42.

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*Teacher of Household Economy and Hygiene,*  
TIMOTHY T. HAWKES,  
*Superintendent of the Workshops.*  
MRS. ELIDA E. WINCHIP,  
*Superintendent of Sewing.*  
WILLIAM L. HOFER,  
*Professor of Music.*  
JULIUS T. WILLARD, B. Sc.,  
*Assistant in Chemistry.*

### COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

College Lands and all business connected with their sale are in charge of the Land Agent.

Bills against the College should be presented monthly, and, when audited, are paid from the office of the Treasurer, in Manhattan.

All Payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka.

The INDUSTRIALIST may be addressed through Prof. E. M. Shelton, Managing Editor. Subscriptions are received by Supt. Geo. F. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Kellerman, chairman of the committee on Museums.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding places, etc.,—may be obtained at the office of the President or by letter.

### Mortgages on Growing Crops.

The extent to which agriculture is palsied by this practice is not generally realized. It prevails mostly where all effort is centered on a single crop which is a collateral for the lender of the money or the vendor of farm supplies. In the northwest wheat region many farms are weighted with this fatal incumbrance, and in the cotton States the curse is still more prevalent. Mr. Dodge, the statistician of the Agricultural Department, has addressed inquiries on this point to the various State agents in the South, and their replies, published in the May crop report, make a pitiful story of discouragement and confiscation. In general it is not money that is borrowed from the banks, but credit from merchants who furnish provisions, farm implements, fertilizers and the like, and take mortgages on the coming crop, payable when that matures. This might be endurable if only legal interest were paid, even when that is as high as one per cent per month. But the merchant charges from fifteen to twenty-five per cent above cash prices, and when the notes mature, the farmer must sell regardless of price, and thus may lose again by being forced to dispose of his crop when prices are low. In North Carolina not less than one fourth of the crop is sacrificed to meet this exorbitant interest. In South Carolina more than a million of dollars will be paid this year for advances. In Georgia the average addition to cash price of all goods sold to farmers is said to be 50 per cent per annum. In Florida the entire cotton and fruit crops will no more than pay the debts of the year. In Alabama the cost of this indebtedness to the agriculture of the State in the form of diminished production and improvement and increased wear of farms and improvements is \$5,000,000 a year. In Mississippi one third of the farmers are hopelessly ruined. In Louisiana 75 per cent of the farmers and planters are in debt. In Texas it will require from 75 to 85 per cent of the value of the cotton crop to pay the year's debts. In Arkansas it takes every bale of cotton to settle up for advances. Now, behind this there is some encouragement whenever the farmer begins to try diversified agriculture, and several States report that prospects are brighter than they have been; but after all the burden is unendurable while the soil is wearing out with the lives of its tillers to pay tribute to the commercial class.—*Philadelphia Press.*

### Concerning Manitoba.

Of the 66,000,000 acres which comprise the Canadian Province of Manitoba, there have been surveyed about sixteen and a half millions of acres. There are 4,000,000 acres of swamp lands within the Province, and the remainder consists of the timbered and rocky region lying around Lakes Winnipeg, Manitoba and the Lake of the Woods. The portion under cultivation is a little over one million of acres, hitherto chiefly devoted to the cultivation of wheat, and up to the 31st of last October, the Department of the Interior reported about 10,930,045 acres as having been taken up within the Province for homesteads and pre-emptions. By a recent arrangement made with the Province, the Dominion Government have ceded to the Province the swamp lands, and 150,000 acres of good lands for University purposes.

The remarkable fertility of the soil on the prairie section, especially that in the Valley of the Red River, is so well known that it is unnecessary that I should refer to it here. The winter climates, though generally severe in the latter part of December and throughout January, is a subject of much disparagement by those who prefer the thirty-five degrees and the forty degrees, but there are redeeming features about this severity, which the settler—the grain raiser—knows how to appreciate, even if the denizen of the metropolis, and of the town, would pre-

fer to see fewer minus records, and more frequent thaws in the winter months than now happen. The incomparable hard wheat for which Manitoba is famous could not be raised were the winter climate more variable and less severe than it is. The same remark applies to northern Minnesota and Dakota, where the winter climate possesses the same characteristics as those of Manitoba and which districts produce a quality of wheat similar to that raised in the Canadian prairie provinces.—*American Agriculturist* for June.

### Advice to Young Girls.

A lady of intelligence and observation has remarked: "I wish I could impress upon the minds of the girls that the chief end of woman is not to marry young." If girls could only be brought to believe that their chances for a happy marriage were better after twenty-five than before, there would be much less misery in the world than there now is. To be sure they might not have so many opportunities to marry as before, but as they don't need to marry but one at a time it is necessary that one should be satisfactory. As a girl grows older, if she thinks at all, she certainly becomes more capable of judging what would make her happy than when younger. How many girls at 20 would think of marrying the man they would gladly have married at 16? At 30 a woman who is somewhat independent, and not over-anxious to marry, is much harder to please and more careful in her choice than at 20. There is good reason for this. Her mind has improved with her years, and she now looks beyond mere appearances in judging men. She is apt to ask if this man who is so very polite in company is really kind-hearted. Do his polite actions spring from a happy, genial nature, or is his attractive demeanor put on for the occasion and laid off at home as he lays off his coat? A very young girl takes it for granted that men are always as she sees them in society—polite, friendly, and on their good-behavior. If she marries early the man who happens to please her fancy, she learns to her sorrow that in nine cases out of ten a man in society and a man at home are widely different beings. Five years at that period of life produce a great change in opinions and feelings.—*Exchange.*

### "Going to Bed" Etiquette.

It is always a debatable point of etiquette whether hostess or guest makes the first movement to go to bed, and thus breaks up the evening gathering. The guest may be overcome with fatigue from a day's journey, the host may be fidgeting under the strain of entertaining, and longing for the guest to show some signs by which he can gracefully and hospitably suggest "that it is getting late," yet neither quite like to appear, as they think, impolite. In fact, many visitors have suffered agonies in trying to be agreeable, while the host and hostess were doing their best to suppress their yawns and to "make conversation" until chance offered a solution to the difficulty. There is, however, but one rule to be followed in the relationship of host and hostess and the hour of retirement.

The host or hostess must always take the initiative, and say an appropriate word as to the lateness of the hour and the desirability of going to bed.

A Boston lady who has entertained numerous "house parties" relates it as her experience that the visitors she most dreads are "owls," who like to sit up till all is blue.

Many is the time, she says, she has regretted the days of her childhood,

when the nurse appeared at the drawing room door promptly at 9 o'clock and carried her off to bed.

How gladly would she now welcome the apparition of the nursery tyrant when obliged to find entertainment until midnight for people

who were as anxious, perhaps, as herself

to go to their rooms.—*Boston Beacon.*

THE British have encouraged the cultivation of wheat in India, and by that means have cut us out of a good deal of our wheat trade, but when it comes to corn it is another matter. There is no other place in the world, except in the valley of the Danube, where corn is grown to any great extent; and for which reason we may not expect to be greatly disturbed by outside competition in foreign markets. Manufactured corn products may be shipped abroad with little danger of foreign interferences in the trade.—*The Millstone.*

### Our Exchanges.

Winfield probably presents the youngest burglars known to house-breaking. Three little fellows aged only seven, ten and twelve years have been engaged in pilfering houses.

In Wichita they offer the electors inducements to get them to come out and register. The *Beacon* announces that abundance of cigars have been provided at the city clerk's office for all who will call and be enrolled.

There is one peculiarity about these anarchist riots. Whenever a well-directed volley is fired into their ranks, the k's and z's lie scattered over the ground, like twigs in a forest after a hail storm.—*Troy Chief.*

The past winter has cost this county in loss of stock between \$15,000 and \$20,000. A great many of our cattle men have lost from half to three quarters of their cattle, and they are yet dying.—*Rawlins County Democrat.*

The Sterling Sugar Works are to be sold to the highest bidder on June 7th, at Topeka. They were appraised on lately at \$15,855. We understand that an effort is being made to organize a company here for the purpose of purchasing and operating them.—*Bulletin.*

When we get as rich as Vanderbilt, there is one thing we will have to a dead certainty, and that is butter. If we have to buy every cow in Europe and America, we will have it. Oh! it does make one so tired to buy week after week the infernal compounds of axle grease, lard, tallow, and the Lord knows what not, painted and flavored and labeled "dairy butter," "creamery butter," and then have to pitch them out of the window. Good old-fashioned "cow butter" is what we want. We haven't tasted it for years.—*Atchison Patriot.*

Suppose the farmers strike, demanding eight hours and \$20 per month. As it is now they rise at 5, breakfast at 6 and are in the field at 7 A. M., one hour, 12 to 1, for dinner, quit at sundown and chore until 8 or 8:30 and get from thirteen to eighteen dollars and board per month. You see they have no time to lock up their employer's horses, take the nuts off his wagon, obstruct his work, render valueless his property and otherwise annoy him; or to hatch up other devilment as "organized labor" is doing. Lucky thing, too, for the farmer, for he is today receiving less for the products of his investments and labor than any other class.—*Newton Kansan.*

Dairy farming adds \$1 per acre to the value of land, while it saves \$1 per acre to the value of land as against grain farming; this \$2 per acre—good rent. Twenty of the poorest milch cows in the country, that two men can milk in one hour and a half in the morning and the same in the evening, will pay the wages of two hired hands and furnish groceries for a good sized family by selling cream at 10 cents a gauge. The skim milk will raise twenty hogs that will be worth \$9 each, \$120, and to this may be added \$300 worth of calves, as a clear profit over and above the crop raised by the two hired men. Don't calculate on simply the price of the cream, but take the result at the end of the year.—*Junction City Republican.*

# THE INDUSTRIALIST.

SATURDAY, JUNE 5, 1886.

EDITED BY THE FACULTY.  
E. M. SHELTON, MANAGING EDITOR.

## COMPETITIVE DESIGNS FOR ARCHITECTURAL WORK.

The trustees of the Allegheny cemetery are planning to build an ornamental entrance gate at a cost not to exceed seventy thousand dollars. Architects are invited to submit designs. A premium of one thousand dollars is offered for the best design. The drawings must be made to a certain scale and in a certain manner, so as to permit of easy comparison.

If properly carried out, this plan of obtaining original and artistic designs is the very best, and should be adopted by individual parties, corporations and the Government, wherever really good and monumental work is desired. It will give talent and skill their proper place, and the young draughtsman a chance to measure himself with the older and more experienced builder. In Europe, especially in France, this plan has done more than any other towards creating national styles. The premium of one thousand dollars is a liberal one.

But it is necessary to go a little farther than the trustees did in this case. It is not sufficient to invite the world to share in a competition of this kind. The main step is to select an honorable and able board of examiners—experts of acknowledged professional standing—to judge the merits of the work submitted. The trustees of the Allegheny cemetery have made a mistake in advertising for designs without publishing the names of the board of experts. Several court houses were built in this State by this plan during the past few years, and, as far as we know, the merits of all plans were judged by the boards of county commissioners. Architects distrust such judgment.—*Prof. Walters.*

### Manures.

In 1844, Messrs. Lawes and Gilbert, of Rothamsted, England, than whom perhaps no two men in the world have done more for experimental agriculture, began a series of experiments on wheat-raising with and without the various manures commonly employed. From a report on these experiments just received, we glean some facts which are interesting. For instance, on one plot of ground, which received its last coat of manure in 1839, and upon which crops of barley, peas, wheat and oats were grown without manure before the experimental work began, they have raised wheat continuously for 40 years, and have received an average product of 14 bushels per acre. The other plots have been treated regularly to applications of farm-yard manure and the various commercial fertilizers both singly and combined with each other. All these experiments have been conducted with the greatest care and accuracy, and the results may be considered reliable.

Some of the conclusions derived from this long term of experimental work are (*a*) that mineral manures alone have added very slightly to the produce grown upon the unmanured land; (*b*) manures containing nitric acid alone, or some compound of nitrogen which is easily nitrified, have considerably increased the crop; (*c*) manures consisting of potash, phosphoric acid and ammonia, or nitrates, appear competent to grow large crops of wheat continuously; (*d*) nitric

acid is the best form in which to apply nitrogen to the soil; (*e*) the amount of nitrogen supplied to the soil in manures is very much larger than the amount recovered in the increase of crops; (*f*) after a certain amount of growth has been reached, each increase of crop requires a proportionately larger application of manure. When the price of grain is high, larger crops can be grown more profitably than when the price is low; (*g*) when farm-yard manure is employed to grow wheat, a considerably larger amount of nitrogen must be applied to produce a given increase in the crop, as much of the nitrogen contained in this manure is not in an active condition; (*h*) a given weight of nitrogen, in the form of nitric acid, will produce more growth in the crops to which it is applied than the same weight of nitrogen in farm-yard manure; but the influence of the nitrate upon succeeding crops will be very much less; and (*i*) there is no evidence to show whether the whole available effect of the nitrogen in one manure is greater than it is in the other. These results are worth reading and remembering.

Out of the knowledge gained from these and other experiments has grown an entirely new branch of inquiry. For example, analysis shows that a very considerable proportion of the ingredients applied to grow the crop is not found in the produce. What has become of this unrecovered amount? Again, the greater part of the crop consists of ingredients which are not supplied in the manures applied. Where do these ingredients come from? If we increase the carbon of our crops by means of artificial manures which do not supply carbon, does the increase come out of the soil? If this is true, the artificial manures will cease to be effective when all the carbon is exhausted. Analyses of the water passing through a cultivated field show that while one very important and costly manure ingredient is present in abundance, there are others which are only there in very minute quantities.

Here, then, is a very large field for future investigations, and one to which we may look for the addition of important facts to our present growing knowledge of this branch of experimental agriculture.—*Supt. Graham.*

### Wind-Pressure upon Buildings.

The frequent occurrence of hurricanes and storms in the Mississippi valley has induced the engineers and architects of this section to investigate the actual force of air movements brought to bear upon vertical, solid, oblique and broken surfaces, such as are presented by buildings,—as walls, roofs and lattice work. Our text-books and encyclopedias of mechanics give but very insufficient data, and many of these are evidently far from being correct. The science of aërostatics is surprisingly meager and incomplete compared with hydrostatics.

It can be safely assumed, we think, that the data given for wind-pressure upon lattice work are all below what they should be. Where the velocity is great the pressure upon close patterns can be but little below that exerted upon solid walls.

It seems almost impossible to comprehend that the wind should be able to dislodge an iron "arch and rod" railroad bridge, like the one at Kansas City, without assuming a surface from 40 to 80 per cent greater than that actually presented. It would require an almost impossible velocity of wind. The case just mentioned

is not an isolated one. The past few years have recorded at least a dozen similar accidents.—*Prof. Walters.*

### AS MR. JUDD SAW US.

Mr. Orange Judd, whose visit to this College was mentioned in our local column last week, has, among other things, the following to say of us this week in his paper, the *Prairie Farmer*:

No part of the work of this institution was more interesting than what we saw in the departments devoted to the training of 127 young ladies, who constitute about one third of the 428 students here enrolled. While mental discipline and literary acquirements are highly important to those who are to form the minds of the coming generation, especially in the earlier and more plastic period of life, the *housekeepers* and *directors* need a much more thorough education in the art of preparing and cooking food. All mental and physical strength and vigor is primarily derived from the food consumed and digested; and, as with domestic animals, so with the human animal,—the best combination and preparation of nutriment to secure the highest results should occupy no secondary place in education.

Going into the culinary department, we found a large class of young ladies, busy as bees, preparing all sorts of foods, cooking, baking, making butter and cheese, setting out the table in a correct manner, taking turns in serving or "waiting,"—in short, learning by practice, under the eye and direction of a skillful teacher, how to perform (and oversee) all kinds of house-work in the best manner. The Instructor was here helping them put in practice with their own hands what she had taught them in the lecture and recitation room. The same thing was going on in the Sewing Department, where are taught by actual practice, as well as by lecture and diagram, sewing of all kinds, by hand and by machine, from patching, darning, "turning pieces to account," and making over garments, up to cutting, and fitting new dresses, and then the more ornamental, such as fine needle-work, etc. The young ladies make their own dresses, of which over 150 have been made here during the year, besides hundreds of lesser garments. We noticed a fine display of the work of this department which is to be exhibited at the National Educational Association, to be held at Topeka in July.

Drawing and sketching is a most desirable acquisition for any person—the ability to note down, in diagram or picture, implements and their parts, dwellings, machinery, plants—in short, to sketch any object or thing in outline and perspective. The full-course instruction in this department, during four terms, gives drawing, projection and perspective. A great variety of specimens we examined show good progress made.

*Enthusiasm.*—We could but notice in nearly every department visited a marked degree of enthusiasm in their calling on the part of the instructors, extending even to the Carpenter Shop, and to the Kitchen and sewing room of the Household Department, the Farm,—in short, everywhere. The enthusiasm of the teachers is always catching; and we observed an almost universal close attention on the part of the students. There is a good deal of this spirit everywhere in Kansas; and its industrial educational establishments are no exception. There is one stimulant to the instructors here not found in some other institutions, there are no annual "elections" to be looked forward to with anxiety, when there are always throngs of competitors, competent or otherwise, seeking places and disposed to criticize all that is done, and push forward new schemes. The teachers feel that here is their place of work; not a sinecure, but to be held as long as they do good work, and that to the utmost of their ability. We incline to the opinion that this is, on the whole, a better plan than that of frequent change.

The financial condition of the institution is on a sound basis with a permanent fund of \$500,000, of which only the income can be used (now \$35,000). This was derived from the sale of public lands,

all of which have been sold but a single quarter section. The buildings and grounds, furniture, apparatus, etc., are all paid for. These are inventoried at about \$200,000, we believe.

The Legislature has thus far been liberal in its appropriations, and this may well be continued. Every dollar expended in promoting the efficiency of this institution will come back directly or indirectly a hundred fold. There should also be a large contingent fund provided for making and carrying experiments in agriculture and horticulture, in feeding, and in other directions—to be expended at discretion by the Regents and Faculty—in testing new seeds and plants, in testing fertilizers, in feeding experiments—in every department of rural life and work.

### Expenses.

Tuition is free, and no general fee for incidental or contingent expenses is charged. In a few special departments of instruction, the following payments are made in advance to the Secretary:

In analytical chemistry, the students pay \$3 a term for the chemicals and apparatus used in their laboratory practice and analysis.

In the printing office, young men, in their first year, pay \$3 a term for office expenses. Advanced students have the use of the office for the work performed during the industrial hours.

In telegraphy young men pay \$3 a term for office expenses.

Young women are furnished with printing and telegraphy free of expense, these two offices, with the Sewing and Cooking Departments, being provided especially for their industrial training.

Lessons in instrumental music, two a week, are from \$10 to \$14 per term, according to its length; one a week, \$6 to \$8.40. One half is to be paid to the instructor in charge with the first lesson, the other half at the middle of the term.

The cost of text-books at the book-store is, for the first year about \$4 a term; for the second year, \$2.75; for the third year, \$7.50; and for the fourth year, \$5.50.

Board and washing are not furnished by the College. Board, with furnished room, can be procured in private families at from \$2.75 to \$4 per week. Some students board themselves at even less cost, and rooms for the purpose can be obtained at a rent of from \$1 to \$2.50 a month. Washing costs from \$0.50 to \$1 a dozen pieces.

Ordinary expenditures, aside from clothing and traveling expenses, range from \$100 to \$200 a year.

### Grounds and Buildings.

The farms, with the stock, orchards, gardens, vineyards, forestry and ornamental grounds, are used for experiment and illustration. All that is not strictly experimental is managed with a view to highest economy and profit.

On the larger of the farms, upon an elevation at the western limits of the city of Manhattan, and facing toward the city, are the College buildings. All are of the famed Manhattan limestone, and surrounded by pleasantly-arranged and planted grounds.

College, 130 by 250 feet in extreme dimensions, arranged in three distinct structures, with connecting corridors. This building contains in its two stories and basement, offices, cloak-rooms, studies, chapel, library, reading room, model kitchen and dairy, sewing rooms, society rooms and ten class rooms.

Chemical Laboratory, one story, 36 by 99 and 46 by 75 feet of floor space, in form of a cross. It contains eight rooms, occupied by the Department of Chemistry and Mineralogy.

Mechanics' Hall, 39 by 103 feet, of two stories, occupied by the Carpenter shop and finishing room, Telegraph and Printing offices, and Music rooms.

Horticultural Hall, 32 by 80 feet, one story and cellar, having cabinet room, class room, work room and storage, with greenhouse attached.

Two stone dwellings, occupied by the President and the Professor of Agriculture.

Armory Hall, 46 by 96 feet, and two stories. This building, which has served many purposes, is now to be fitted for armory and drill room below, and for class room, laboratory and museum of the Department of Natural History.

The barn is of stone, 48 by 96 feet, with sidehill basement stables, granary, tool-room, etc.

The blacksmith shop, piggery, implement shed, and various out-buildings are, of wood.

### A Good Education Pays.

1. In dollars and cents. All testimony of statistics agrees in showing that educated laborers, of all ranks, have better work and better wages than the uneducated.

2. In influence and position. Careful estimates make it certain that the chances of promotion to places of trust and power among men are almost two hundred times as great to an educated man as to an uneducated.

3. In usefulness. The bulk of good work in the world,—discovery, invention, government, philanthropy and religion,—is brought about by those who learn to think by study.

4. In enjoyment. Our pleasures grow out of what we are ourselves more than from surroundings. A well-trained man sees, hears and handles a great deal more of the world than an untrained one. All things do him good, not so much because he owns them as because he understands them. He always has good things to think about.

## THE INDUSTRIALIST.

SATURDAY, JUNE 5, 1886.

### CALENDAR.

1885-86.

FALL TERM.—Sept. 10th to Dec. 18th.  
WINTER TERM.—Jan. 5th to Mar. 26th.  
SPRING TERM.—Mar. 29th to June 9th.  
June 9th, Commencement.

Persons receiving the "Industrialist" need have no fear of bills to come; for the paper always stops with the expiration of subscriptions, unless continued by favor of a friend or of the College.

### BONDS WANTED.

School District bonds issued on College blanks will bring more than par value at once. Township and city bonds are also wanted. Address T. P. Moore, Holton, Jackson Co., the College Loan Commissioner.

A handsome new carpet adorns the Library.

The Board of Regents meet on Tuesday next June 8th, at 9 o'clock A. M.

Secretary Graham has been invited to deliver the class day address at Eureka College, Eureka, Ill., at commencement, June 17th.

The rain of last Saturday was the salvation of the State. Rain and other good things always come to Kansas just when they are needed.

Mr. G. McFadden, southwestern freight agent for the Wabash system of roads, spent a part of the forenoon of Wednesday in looking over the College. He expressed himself as highly pleased with what he saw, and amply repaid for his trip.

The lawns have been nicely shaved, the weeds have been chopped up from the drives, and the drives themselves smoothed more or less, a hundred feet of temporary hitching rack have been erected south of the main building, and by a great variety of like tokens we are reminded that Commencement day is close by.

The editor of the Walnut Valley (El Dorado) Times of May 21st, "believing that the objects and accomplishments of the Kansas State Agricultural College will be of very great interest to parents and to young people seeking higher education," gives in the issue mentioned a two and a quarter column resume of the new College catalogue, made with excellent spirit and judgment.

"Extremes" was the subject of Mr. Sam Kimble's address given before the Webster Literary Society on Thursday evening. The speaker treated his theme from the standpoint of an old member of the Society returning after much of experience in the broader ways of business life. The address was an earnest plea for conservatism in thought and action, and from the first received the closest attention from the audience.

At the sound of the reveille yesterday afternoon, Lieut. Nicholson came promptly to the "scratch" "armed and equipped as the law provides." The subject of the Lieutenant's lecture was, "Mobs from a Military Standpoint," and, although the lecture was one of the shortest delivered from the Chapel rostrum this year, it received loud, long and hearty applause. Speaking quite as an outsider, we incline to the opinion that the Lieutenant presented sound sense on this important question.

The following is the order of exercises for Commencement week:—

Thursday, June 3d.—Annual address before the Webster Society, by Mr. Sam Kimble, at 8 o'clock P. M.

Sunday, June 6th.—Baccalaureate Sermon, by President Fairchild, at 4 o'clock P. M.

Monday, June 7th.—Examinations; Class Day exercises for invited guests at 4 o'clock P. M.; Undergraduates' exhibition at 8 P. M.

Tuesday, June 8th.—Examinations; cattle sale at 1 o'clock P. M.; annual address at 8 P. M.

Wednesday, June 9th.—Graduating exercises at 10 o'clock A. M.; military drill at 4 o'clock P. M.

The final examinations of the term and year will be held in the various class rooms and shops as follows:—

Monday, June 7th, 8:50 to 10:30 a. m.—Drawing, Arithmetic, Composition, Botany, Geometry, Entomology, Hygiene, Industrials.

10:35 a. m. to 12:10 p. m.—English Grammar, Botany, Algebra, Entomology, Drawing, Chemical Physics, Industrials.

1:30 to 3:10 p. m.—Dairying, Drawing, Writing, Industrials.

10:35 a. m. to 12:10 p. m.—Book-keeping, Algebra, English Composition, Analytical Chemistry, Civil Engineering, Industrials.

Bro. Atwood, in this week's Republic, under the heading Commencement Considerations, gives the good folks on the bottoms some grand advice as follows:—

Citizens of Manhattan, Commencement day comes next Wednesday. This is a yearly event, 'tis true, but the importance of the day should not be lost sight of. Every one should do something to make it pass off happily. As many as can should go to the College and hear the graduates speak. Ask your friends to come and stay over night and take in Commencement. Next Wednesday will be the biggest day the Agricultural College has seen. There will be more guests here, and we—our business men in particular—ought to pay these guests some attention. Several hundred people will come from Burlingame and other points along the M., A. & B. on a special train—some to attend the College exercises and to see the cattle that are to be sold, others to see Manhattan and have a good time generally. Every courtesy shown these visitors will bless the giver, and certainly we ought all to do our utmost to add to the fair fame of Manhattan. Those who have teams should take the visitors to the College and other points. Let us show that we appreciate our good fortune.

### COLLEGE SOCIETIES.

ALPHA BETA.—Chartered, December 26th, 1870. Meets in the Society Hall every Friday at 2:30 P. M. Ladies admitted. New students cordially invited to attend.

MISS IDA QUINBY, President.

J. W. VANDEVENTER, Secretary.

WEBSTER.—Chartered, January, 1871. Meets in Society Hall every Saturday evening. Visitors, especially students, always welcome,

C. M. BREESE, President.

W. J. BURTIS, Secretary.

SCIENTIFIC CLUB.—Meets on first Friday evening of each month. Composed of members of the Faculty and advanced students. Devoted to the improvement of its members in general scientific knowledge, and the encouragement of original investigations.

PROF. WALTERS, President.

MRS. KEDZIE, Secretary.

HAMILTON.—Chartered January 29th, 1885. Meets every Saturday evening. Admits gentlemen only. Visitors always welcome.

N. E. LEWIS, President.

A. WALTERS, Secretary.

The Y. M. C. A. meets at 3:30 P. M. Sunday.

C. A. MURPHY, President.

L. B. PARKER, Secretary.

The Y. W. C. A. meets Tuesday afternoon.

NELLIE COTTRELL, President.

LORA WATERS, Secretary.

### REPORTS.

SOCIETY HALL, May 29th, 1886.

The Society came to order at 8 o'clock P. M. with President Breece in the chair. D. G. Fairchild led in devotion. E. A. Martin and W. R. Browning were successful in refuting the argument, brought forward by R. Cameron and I. R. Miller on the question "Resolved, That the eight hour system would be detrimental to the laboring classes." L. H. Dixon read an essay, "Home Influences;" J. W. Randall delivered a declamation "The National Flag;" Wm. Knabb read a selection "My Fourth of July Sentiments;" discussions were presented by M. Hulett on the mineral "Platinum," and by F. A. Thompson on "The true State of Africa."

W. J. B.

SOCIETY HALL, May 29th, 1886.

President Lewis, at 8 o'clock, called about twenty Hamiltons to order. After roll-call J. Hammerli offered prayer. The programme of the evening was next taken up. J. A. Campbell delivered a declamation in a way which showed him to be master of the art of speaking; H. N. Rice came next on the programme for a declamation; music was furnished by Z. E. Wright, committee; G. W. Waters, assisted by E. B. Colburn, and E. M. Paddleford, assisted by J. Hammerli, debated the Chinese question. Decision rendered in favor of the affirmative. Recess. Music by committee. Thos. Bassler, Class of '85, and Ex-President of the Society, spoke at some length on various subjects. After listening to the report of the critic and the reading of the minutes, the President announced "The Society stands adjourned."

C. A. C.

SOCIETY HALL, June 4th, 1886

Society came to order for the final session of the year at the call of President Quinby.

Exercises opened with a solo, "Danube River," by Nellie Cottrell, flute accompaniment. Miss Hopper led in devotion. A carefully-prepared essay on "Ventilation" was presented by Miss Lucy VanZile, followed by a well-rendered select reading, Meredith's "Vision of Virgins," by Blanche Thompson. Debate for the day was on the question, "Resolved, That the eight-hour system would be injurious to the laborers." Miss Hopper and D. W. Working argued the affirmative and Miss Willard and L. B. Parker the negative. Decision was rendered in favor of the affirmative. Mr. Platt's farewell Gleaner was appreciated by all and is one of the best numbers on file. A five-minute recess was followed by music by the P. E. A. H. U. E. D. B. C. P. S. Club—an orchestral troupe of thirteen pieces—who executed, in a spirited manner, the "Farmers' Dance." The services of this renowned club were secured at enormous expense by Miss Nellie Cottrell, committee. Under new business a motion was passed making the fourth years of '86 "orneries" members of the Society. A "Good bye Song" closed the exercises of a session that will long be remembered, especially by those who have for the last time answered to the roll. The programme for Sept. 10th is as follows: Music, H. W. Jones; oration, Lucy VanZile; select reading, L. B. Parker; debate, C. A. Murphy and Lora Waters, Nellie Cottrell and O. L. Utter; Gleaner, Mattie Farley. We cordially invite you all to come.

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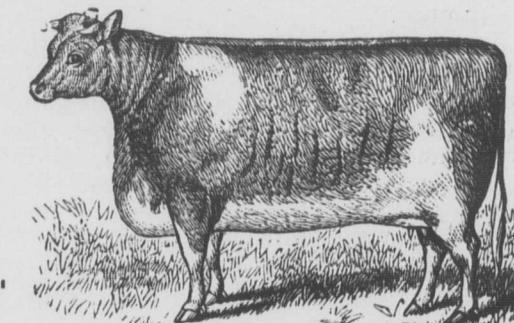
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# THE INDUSTRIALIST.

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KANSAS STATE AGRICULTURAL COLLEGE.

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No. 43.

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Loans upon school-district bonds are to be obtained from the Loan Commissioner. College Lands and all business connected with their sale are in charge of the Land Agent.

Bills against the College should be presented monthly, and, when audited, are paid from the office of the Treasurer, in Manhattan.

All Payments of principal and interest on account of bonds or land contracts must be made to the State Treasury, at Topeka.

The INDUSTRIALIST may be addressed through Prof. E. M. Shelton, Managing Editor. Subscriptions are received by Supt. Geo. F. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Kellerman, chairman of the committee on Museums.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding places, etc.,—may be obtained at the office of the President or by letter.

### Commencement Exercises.

Affairs on College Hill have been interesting this week. Since our last issue, Commencement came, with all the pleasant things belonging to that time, and is gone, and now is vacation.

#### WEBSTER ANNUAL ADDRESS.

The exercises of Commencement began on Thursday evening, June 3d, when Mr. Sam Kimble gave the fourth annual address before the Webster Literary Society. "Extremes" was the subject of his address; and the Websters, as well as outsiders, agree that no address they have had was any better. This alone is a compliment; but we shall go farther, and say that we have heard only words of appreciation for Mr. Kimble's effort. His remarks were full of common sense; and his fellow-Websters propose to keep them in convenient form by printing the address in pamphlet form.

#### BACCALAUREATE SERMON.

On Sunday at 4 p. m., the President gave the Baccalaureate Sermon. He was assisted in the opening part by Rev. Campbell. "Am I my brother's keeper?" was the subject of the sermon. We are our brothers' keepers. Every individual right brings its correlative duty. It is a duty to think, to act, to vote. One's feelings answer when duty is done. Individual happiness depends upon duty done. The chief duties of life cannot be guarded by law. The duty of man is summed up in "Thou shall love thy neighbor as thyself." The thought of this sermon was equal to the many others given in this city by President Fairchild. Like all the other baccalaureate sermons, it will be printed in the INDUSTRIALIST, and thousands may read it with profit to themselves.

#### MONDAY AND TUESDAY

were examination days. The excitement about examinations is always confined to the student. Many people, however, visited the several classes, and seemed to be interested.

#### CLASS DAY EXERCISES.

One of the pleasantest things connected the closing exercises of the year was the programme as carried out by the graduating class. This is the first class that has given its friends an entertainment but, now that the idea is inaugurated by the class of '86, we hope succeeding classes will do their friends good in the same way. The audience of about two hundred people gathered in Society Hall on Monday afternoon at 4 o'clock. "Drift, My Bark," was a pretty duet rendered by Miss Ida Quinby and Gus Platt. The opening address, by J. G. Harbord, the "Class of '86," by Gus Platt, the oration, "Ideal vs. Real Life," by W. E. Whaley, the speech "Our Alma Mater," by Miss Lillie Bridgman, and the farewell address, by the class president, D. G. Robertson,—were all of the best kind. "Class History" was given in a pleasant manner by A. M. Green. "Class Statistics," collected and compiled by John Higinbotham, proved that statistics are not always dry. Right in the midst of a column of figures his wit would burst out; and no one cared then whether the total was given or not.

The "Class Poem" was written and read by J. W. Van Deventer. It was a pretty poem, and was heartily applauded.

The "Class Song" was the production of several members of the class, and embodied references to all the industrial arts taught in the College. It is too long to print, and is best when sung. Miss Ida Quinby arranged the music. The "Class Parting Song" was written by Miss Lillie Bridgman; and the music to this was written by Miss Ida Quinby.

#### UNDERGRADUATES' EXHIBITION.

Monday evening was given up to the entertainment presented by eight members of the third-year class. The declamations were selected with the idea of

appropriateness for the occasion and the delivery was almost above criticism. Each spoke as if the production were his own—and this is what makes a declamation interesting.

The following is the programme as carried out:

Fantasie Mexicana,.....Orchestra.  
Invocation.  
Chorus, .....The Heavens are Telling.  
Eulogy on Grant,.....F. H. Avery.  
The Grammar of Life(Taylor), Lora L. Waters.  
The Future of the Republic(Garfield),.....C. A. Murphy.  
Piano Solo—Lohengrin,.....Miss Willard.  
The Ideal and the Material(Peck),.....C. M. Breese.  
The Flood of Years(Bryant),.....Theresa Wikander.  
Hopes and Fears, .....J. B. Brown.  
Solo—The Pilgrim, .....Miss Little.  
Bread (Mary C. Ames), .....Nellie Cottrell.  
The Industrial Arts(Willard), .....W. J. Burtis.  
Chorus, .....The God of Israel.  
Benediction.

These young people have been drilled in elocution for the past year under the direction of Prof. Shelton.

The music was furnished by classes under the direction of Prof. Hofer. It is worth noting right here that all the music for the various college exercises has been rendered by students or those who have been students. This is the first commencement when outside help has not been called for.

#### EXCURSIONISTS.

The arrival of the excursion train from Burlingame on Tuesday morning made things appear like a Fourth of July celebration on College Hill. Fully three hundred people came in on this train; and they were full of praise for the treat C. L. Burnham got up for them. The excursionists were hungry when they arrived—all excursionists get hungry about every three hours—but the ladies of the Baptist church had prepared to fill them for twenty-five cents each. The excursionists' stomachs and the church's purse were filled. After attending the cattle sale, they were fed again. The Manhattan band appeared upon the campus now, and the College cadets soon followed. The band played several good pieces and the cadets performed and showed their "new clothes."

#### CATTLE SALE.

Tuesday afternoon was given entirely to the sale of the pure-bred cattle of the College and Bill & Burnham. None of the animals sold brought high prices, but all brought good prices. The college cows brought \$1075; average, \$134.37. The bulls brought \$820; average, \$117.14. The Jerseys brought \$385; average, \$96.25. Messrs. Bill & Burnham's cows brought \$1955; average, \$135. The bulls brought \$1215; average, \$121.51. Messrs. Bill & Burnham sold a number of calves with their dams—a fact which serves to explain their increased average. The time to enter Chapel to hear the

#### ANNUAL ADDRESS.

by the Hon. T. Dwight Thacher, had arrived. The subject of his address was "Science in Productive Industry." Mr. Thacher is a pleasant speaker, and the address was heartily received by a chapel full of people. We are glad to know that it will be published.

#### COMMENCEMENT DAY.

Wednesday was a beautiful day, and fully one thousand people gathered in and about the various College buildings. Very soon after ten o'clock, twenty-one graduates filed onto the rostrum to make their farewell orations in college life and to receive their diplomas. The Regents and Faculty were all on the rostrum also.

The order of exercises today was the same as on former occasions. After the orations were all given, President Fairchild, in presenting the diplomas, made a characteristic speech, full of feeling and earnest urging on to hard and faithful work. Their diplomas were commissioned to do good work and this was expected of them.

It is complimentary to President Fairchild to say that these graduates have been under his charge in rhetorical work during the year past.

J. T. Willard and Jacob Lund, both of whom graduated in '83, today received the degree of Master of Science. This degree was well earned. Mr. Willard has been assistant in chemistry at the College since his graduation, and Mr. Lund has pursued a special course in mechanics, and has also been in the employ of the College since his graduation. Every one is glad the degree was conferred.

Through the kindness of the members of the graduating class, we have been permitted to give outlines of the orations they gave. Any oration limited to four minutes must necessarily be little more than an outline itself; but, even in this length of time, these young people have been remarkably successful in giving a connected line of thought throughout their orations. It has been our aim, in looking these orations over, to give such a synopsis of each as will enable a careful reader to quite easily trace the line of thought of the student.

It ought not to be expected of any student of a college to present, at graduation, very much original thought. His time has been occupied in learning the thoughts of other men, so that he may be the better prepared to think for himself after graduation. As the fruit is the culmination of the plant, so may we expect the results from the training a college course gives to appear in the ripe student—those who have graduated—and, from their knowledge, are then enabled to give out to men thoughts that are worthy of consideration.

It is impossible to give our ideas of each graduate: the synopses given below tell just what we want to know about them.

#### AN EVIL NOT IN PANDORA'S BOX

was Miss Lillie Bridgman's subject. A single little imp, which has plagued mankind from mythical times to the present, dwells in an atmosphere essentially feminine. Of course that portion of humanity known as the "sterner sex" is never directly affected by it, but I venture the broad statement that there is not, and never has been, a woman who has not been wheedled and tormented by this alluring evil into doing what her judgment and common sense denounced. Pandora, the first of mortal women, felt its strange power. She opens the box, the evils are out, and no human power can confine them again. Palaces and halls are built to please our fancy; but one door is barred against us. We open it—a Bluebeard's chamber is our prison cell! And thus we seek the tragic, the terrible, the ridiculous in life, led only by a woman's curiosity.

It is surely time for a reform, but in what way? Shall we seek for the mythical box and in it lock forever the little imp that made Pandora so charming and so wicked? or shall we each constitute ourselves a committee of one to look after the correction of this "cause of all our woes?" The latter course is more in harmony with these progressive times. Surely the Millennium will not be far distant when this miracle is performed, when our interest in our neighbors is refined to that tender passion—sympathy; when the mysteries of the human heart, of sealed jars and boxes, are examined with the caution that characterizes the philosopher.

Ah, Pandora, all-gifted woman! even in this prosaic age thy children may find the lost charm that will shrieve thee of thy sin.

ELECTRICAL TRANSMISSION OF POWER was L. P. Brouss's theme. All are familiar with electrical phenomena as exhibited in the telegraph and telephone, and almost all are familiar with the electric light, already indispensable: yet the power of electricity is still a wonder. In

## THE INDUSTRIALIST.

SATURDAY, JUNE 12, 1886.

EDITED BY THE FACULTY.  
E. M. SHELTON, MANAGING EDITOR.

the British navy yard is an electric light by which newspapers can be read a distance of fifteen miles: thus night is turned into day over an area of 700 square miles. But of more general benefit in the arts is the electrical transmission of force through long distances. The time is coming when electrical engines will supplant the locomotive upon railroads as they have replaced horses upon some street cars already. What a prospect for the future is in this property affording means to transport the power of Niagara or Nova Scotia tides to manufacturing centers! An important advantage of electricity is that it may be stored up.

When electricity becomes better known, it will become a household necessity. Of all forces discovered by man, none admits such diversity of applications as does electricity. The expectations of the most enthusiastic electrician for the grand electrical future are entirely within the range of possibilities.

### MOBS IN REPUBLICANISM,

P. H. Fairchild. The American people are upon the alert watching for some usurpation of power by the Government. They scan all people, banish the Chinaman, and condemn the Mormon, but overlook many evils that are slowly eating towards the heart's core of our Government. It is almost appalling to mark the rapidity with which this spirit of mob-rule has gained control. One act of violence follows another in quick succession. The smoke of burning dwellings and factories is fragrant incense offered up to Satan and his hosts. Mobs are but the tools of unprincipled men with no end in view but self-aggrandizement, and with no distinct line of action.

Injustice and injury cry aloud for vengeance, and wake within the heart of the average *imported* American, not a corresponding wish for righteous vengeance, but for bitter revenge. Aristocracy of nobles is preferable to a *mobocracy* from the scums of Europe. No republican government can exist where self-restraint is wanting and self-indulgence prevails. The true American, awakening to this imminent danger, must restore law and order.

### COMPARATIVE MEDICINE

was the subject of Mr. A. M. Green's oration. It is only in very recent times that a study of diseases of the lower animals has been thought of sufficient importance to merit the attention of educated men; and yet comparative medicine is not of recent origin. It was practiced by Greeks, Romans, Persians and Egyptians, but sank into oblivion in the Middle Ages. The veterinary college was founded at Lyons in the eighteenth century. Others have followed since. The condition of the veterinary profession is far below what it should be. In European countries it is encouraged by the government, and so is making rapid progress. Very little has been done in our country to establish the profession, though we need it most.

The demand in all countries for skilled veterinarians is constantly increasing. In the mingling of nations, pestilences no longer stay in their birth-places. Disease may arrive in cargo at New York today; a fortnight hence it may be sweeping away the flocks and herds of Kansas. The loss by disease in Kansas is reported as \$5,000,000 per annum, but the actual loss is probably much higher.

The field open to the veterinarian, then, lies mainly in protecting the public health and public wealth; and the young man who chooses this as his profession will find ample scope for the exercise of all his powers.

### THE ELEMENT OF SELF IN EDUCATION.

was J. G. Harbord's theme. The term "self made" is commonly applied to one whose mental culture has been attained without the aid of schools. The element of self is not noticed in our business except when it comes through strictly private study. Is not this an oversight? Is not the school-educated man

who succeeds in life as much self made as any other? His opportunities may have been better; but what are opportunities unused? The combined efforts of all teachers in all ages, brought to bear upon a single individual, affords but the opportunity: learning most come from the man himself.

The most successful man is the one in whose training the element of self is most prominent. All processes of instruction depend for their power upon the application of the individual. The element of self is largely responsible for our moral improvement. Man's whole education, which means his whole life, depends upon himself in his use of opportunities. Then it remains for every one to say what he will be. Every man is the builder of his own fortunes to the extent that he trains himself to override obstacles and control circumstances.

### THE LEGAL STATUS OF THE LABORING POOR

was the subject of John U. Higginbotham's oration. This country, founded as it is, upon the declaration that all men are created free and equal, makes no invidious distinction between classes. All have the same rights, duties and punishments. The law of custom finds their tenure of existence in the consent of the people. From this source the laboring poor hold certain additional rights. From this source, also, a laborer receives his right to work where and for whom he pleases. But the working men of this country are practically a unit. They have formed lodges. At a signal from one man, 500,000 have sworn to lay down their tools and cease work. Business is at a standstill. Strikers depend upon the sentiment of the people for their strength; but they should take care to not use this new-found power wrongfully. This may be done in several ways. Even the agreement to strike blindly at the snap of another's finger is the contradiction of the claims of the free laborer and the common law of right and obligation. A labor union destroys its own vital principle when it prevents other men from taking the places made vacant by its members. His right to labor for whom he pleases is denied. Capital has long been looked upon as a tyrant, with labor as its much-abused slave; reverse the picture, and let labor be viewed as dictating unreasonable terms to capital, and labor's strongest friend, the popular voice, will no longer be heard in its behalf—and without this, what rights have the laboring poor?

### CONTROLLING FORCES IN CHARACTER

was what Miss Maria C. Hopper spoke of. Innumerable differences of character are everywhere apparent. To a thoughtful mind, these are of deep interest. We find in every geographical locality an answering type of humanity. In communities or between individuals, this difference may be more readily observed. The conditions bring out the different traits, moulding each minute detail, and the result is betrayed at every step by habits of thought, speech, manner and expression.

That which is able to control circumstances, to change them to suit its purpose or to rise superior to them, is the personal will; but is not this, too, dependent on surroundings? The will may be, and often is, acted upon by circumstances, but it is no more a creature of them than is life.

Recognizing the powerful influence of condition upon the character, let us remember that it is but half. The better we understand these conditions, both in relation to natural forces and to our intercourse with others, the better shall we be able to control them; and so, by exercise of will in circumstances, reach the actual heights of destiny.

### NATURE'S USE OF LITTLE FORCES

was presented by Miss Ada Little. In all the details of human life we find the action of forces, though insignificant, but, in the aggregate, making up all of life. This is as true of other things as of human life. Each tick of the clock marks an instant of time, which, multiplied by infinity, makes eternity. The organ of a tree is a single cell. The growth takes place by a multiplication and division of cells. If a cell is one two-thousandth of an inch in diameter, in a cubic foot we have 13 trillions 824 billions of cells. But think of the millions of trees!

The present fertile condition of the

earth has come through seemingly small, long-acting forces. The soil that we now cultivate was once solid rock. Erosion of ages has made the change. All that is eroded must be deposited. Rivers are constantly throwing down their load of sediment. The Mississippi annually deposits at its mouth 24,000 square miles. We know by the stratification that the greater part of the earth has been laid in place by water, a grain at a time.

These are but hints of the immense forces working so slowly around us that we do not appreciate them. "Scorn not one drop: of drops the shower is made; of showers the waterfall."

### INTELLIGENT LABOR,

F. L. Parker. The cause of the superiority of man's labor over the brute's is in the fact that he can assist his physical strength with labor of his mind; and in proportion as his intelligence increases does his labor become more productive. One acquainted with the laws of nature avails himself of her mighty agencies. The mind and the matter are made to propel his machinery. All great inventions make it possible to apply labor more profitably. The railroads built throughout our country lessen the cost of transportation and crowd the business of a week into a day, thus adding greatly to the length of a business life.

Education contributes largely to industry, and without industry man can accomplish but little. The wealth of the nation is high civilization; and all these magnificent improvements have come from the labor cultivated through intelligence and industry of man. It is education that has set men to thinking how they may increase the productiveness of the labor of the nation; and it is of equally as much importance to the farmer, mechanic and common laborer as to the statesman, politician or the man of letters. It is the lack of education that is the constant source of trouble between capital and labor. Our nation is a progressive one; and generations have outstepped their predecessors just in proportion to their education. To prepare men to meet higher obligations of manhood is the highest function of education.

### THE INFLUENCE OF THE PRESS

E. H. Perry had for his subject. We recognize the press as one of the most important and universal influences at work among us—important because its products in some form reach almost every individual and touch every interest. The development of the press is coextensive with that of the people throughout the country. There was little demand for newspapers in the colonial period; but on the advent of cheap printing, the demand almost exceeded the supply.

With such a universal division of newspapers as we now have, who can estimate their power? Imagine the effect which would be produced if all the press-products of our land were stamped out. Where would stand our government, our civilization, our existence?

Think of what the press has done in exposing frauds of various kinds! On the other hand, estimate, if you can, the influence of "Uncle Tom's Cabin," in newspapers, pamphlets and books, during the few years preceding the war—not only in showing the true condition of slavery, but in rousing the people to action.

The press makes the exchange of thought everywhere possible,—in leading, teaching, elevating the people, until today, though corrupt in many things, no doubt, it yields the most beneficent influence in our land. Let us honor and establish the good qualities of the press, for to it do we owe our present condition as a people.

### A PLEA FOR THE HUMANITIES

H. A. Platt. In the literature of the past is mirrored the growth of the race toward the enlightenment of the nineteenth century. In this western struggle, man's chief energy is spent in making a living. The church, the fraternity, theatre and club occupy the little attention not given to business, and the literary field remains unexplored. If once a day we glance over the daily news or once a week peruse the country weekly, we are "keeping up with the times." Permanent peace and general education have done away with poetry and oratory. Man can know the present and look into

the future only as he knows the past. It is not intuitive genius that makes men far-sighted statesmen. If we would perfect our system of government, we must study the governments of other people. If we would reform our social institutions, we must know the causes of existing evils.

If there is one factor in the history of the race which stands out more prominent than another, it is the constant reaching out of the mind to grasp the relation of man to his Creator. Since the days of Aristotle, the best efforts of history's most brilliant men have been directed to the question of life and immortality.

The third branch of literature for which I plead is the purely ideal—the most neglected while the most humane of the humanities. In poetry we find all that is most beautiful in the thoughts of men. We are carried away from self, from cares and discouragements, into the purer realms of the imagination—the source of pure desires. Let us not turn our backs upon the literature of the past while we dig and delve for gold. Let us not become mere automata, living out our time without thoughts of anything but money.

### WISDOM COMES WITH YEARS

was presented by Miss Ada Quinby. To observe, to think, to act—these form the three great elements of all progress. The power a man has in the world results from his use of the knowledge he has obtained by thought and research. Experience is valuable only as it teaches one to observe and think. Nearly all the knowledge a child gains is by observation; and the accuracy of much of his succeeding knowledge depends upon his use of these powers even at this early period. He soon learns to connect facts and reason out others; and as he grows older this habit increases. Not till mature manhood is reached does he attain to his full powers of thought and reason. So we find that most of the work of authors, scientists and statesmen, whereon rests their fame, is done in middle or later life. Thus we have three periods of man's life—of observation, of reflection and of action. The three accompany each other in every step of life.

All natural growth is slow growth; and the higher in the scale of creation an organism is, the more slowly does it develop. Thus man is longer in reaching his maturity than other animals. These powers may be formed early, but the result would be different. One would be the result of nature, the other of art. It is a law in nature that in all life there is a gradual growth, a culmination and a dying out; and the world gains nothing by one who reaches his noon in the morning of life, for evening but comes the sooner.

### YOURSELF OR A COPY—WHICH?

Miss Ida Quinby. Every person is confronted with the question, "What will you do?" and this he must answer if it takes a life-time. It is not what trade he will follow or what profession he will adopt, but the one point to decide is whether he will be *himself* or a *parody* on some one else—a *masterpiece* or a *copy*. Nine out of ten will say "a masterpiece, of course," but too often their lives answer "a copy." This is so because of the power of fashion. Perhaps it's human nature to want to be like other people, but there is danger of too much likeness. It is a glorious thing to be endowed with a "something" which makes one different from everybody else. There is a satisfaction in knowing that one has the capability of doing what another can never quite do.

People are often dissatisfied with themselves,—perhaps a righteous discontent,—and do honestly want to improve and be something. So they set up their ideal, and proceed to make themselves correspond to that model. Right here the trouble lies. All must concede that some regard must be paid to the "internal fitness of things." Make sure first that you know what you have to work with, then strive to develop those powers with reference to the good of others—not ashamed that you are *peculiar* or in any way different from others, but accepting this as a sign of your mission.

At best you can be but an inferior copy. Then, in conclusion, let me ask, Yourself or a copy—which?

(Continued on fourth page.)

# THE INDUSTRIALIST.

SATURDAY, JUNE 12, 1886.

## CALENDAR.

1885-86.

FALL TERM.—Sept. 10th to Dec. 18th.  
WINTER TERM.—Jan. 5th to Mar. 26th.  
SPRING TERM.—Mar. 29th to June 9th.  
June 9th, Commencement.

Persons receiving the "Industrialist" need have no fear of bills to come; for the paper always stops with the expiration of subscriptions, unless continued by favor of a friend or of the College.

## BONDS WANTED.

School District bonds issued on College blanks will bring more than par value at once. Township and city bonds are also wanted. Address T. P. Moore, Holton, Jackson Co., the College Loan Commissioner.

## NOTICE TO BUILDERS.

Sealed proposals for refinishing Armory Hall—wood and iron work, plastering, and painting—will be received at the President's office up to noon of Tuesday July 6th. Plans and specifications may be seen at the above-named office after June 15th. The right to reject any or all bids is reserved.

## COMMENCEMENT NOTES.

Not fewer than one thousand people were on the grounds on Commencement day.

It seemed quite natural and altogether pleasant to see, once again, Bro. Coburn's interested countenance among the rest above the rostrum during Commencement exercises.

The Commencement report of the *Mercury* is so like ours in all the essential particulars that we strongly suspect that enterprising journal of plagiarism. We would make the charge open and direct but for the fact that the *Mercury* report appeared some three days in advance of this issue.

The "Baptist ladies" seem to have found a real bonanza in the restaurant managed by them in Armory Hall. It is reported that the receipts amounted to nearly \$350, of which \$200 were profits. Thus we see how the College is a great promoter of morality and religion in these benighted parts.

We propose to break all to smash all the rules and traditions of impersonal journalism by remarking that Miss Neal's sketch of the history of the different departments of the College, appearing in this week's *Nationalist*, is a most creditable piece of work. The very handsome \$20 ostrich feather which we are in the habit of awarding to ladies who write well of the College is hereby respectfully but firmly placed in Miss Neal's new spring bonnet.

We do not remember ever before to have seen so many prominently-connected people in attendance upon Commencement exercises as were here on Tuesday and Wednesday. Here is a partial list: Chief Justice Horton, State Printer Thacher, Judge McFarland, T. B. Sweet and Secretary Sims, all of Topeka; Senator Lowe, of Leavenworth; Hon. F. D. Coburn, of Kansas City, Kansas; Prof. Sanborn, Dean of the Missouri State Agricultural College; Editor McDonald, of the Burlingame *Chronicle*, and D. V. Dowd, of the Eskridge *Home Weekly*.

## SALE NOTES.

We have heard a good many favorable comments on the way Col. Sawyer got in his work on Tuesday.

Mr. Thacher came to the College to deliver the annual address, and a strong manly production it was; but he also caught the fever, and put in his bid at the right time to secure a handsome two-year-old bull.

Every animal sold by the College at the late sale was bred and raised by the College. This is the first instance in the history of the State where a sale of pure-bred stock wholly of the breeding of the seller has been made.

The good feeling manifested at the sale was the subject of general remark. We heard an extensive cattle breeder and a common frequenter of stock sales remark that he had never before attended a stock sale where not an unkind word or suspicion was uttered.

The general results of the sale of the College stock is as follows: Eight Shorthorn cows and heifers made the average of \$134.37, four Jersey cows and heifers \$96.25, and seven yearling Shorthorn bulls \$117.14. Besides, some

half dozen six-months-old pigs—Berkshires and Poland Chinas—were sold at prices ranging from seven to fifteen dollars.

Mr. Burnham's special train from Burlingame was a great success. It brought from the southern county some 300 of the best-tempered people we have ever seen; and, although Mr. Burnham made nothing out of the train but the satisfaction he took in giving his friends a treat, he lost nothing, coming out of the venture almost even-handed. We wish that he had cleared a thousand dollars.

Better than the shekels taken in, by a good deal, was the kindly spirit everybody showed us at the sale. During the whole of that hot, dusty afternoon men, by the dozen, who had no especial interest in the stock, stood by the sale, and with bids and encouraging words to intending buyers did us all the good they could. In this connection we remember particularly W. P. Higinbotham, Jeff. Mails, Mr. Knipe and son and Gen. McDowell; and T. B. Sweet, of Topeka; J. H. Fullinwider, of El Dorado; W. W. Carney, of Great Bend; J. Fields, of Burlingame, and others—a long list altogether.

## BOARD MEETING.

The adjourned meeting of the Regents was in session during parts of Tuesday and Wednesday between exercises of Commencement. All the Regents were present. The routine business, beyond the conferring of degrees upon graduates of this year and Messrs. J. T. Willard and J. Lund, of the class of '83, was postponed till the next regular meeting.

Letters of regret, acknowledging invitations to Commencement, from Governor Martin and Judge Valentine were read.

Regent Fullinwider was chosen to represent the Regents at the Semi-annual meeting of the State Horticultural Society at Wichita.

Prof. Kellerman was authorized to make an expedition to Wallace, if found advisable, for collecting specimens.

A quit-claim deed was authorized on request of Messrs. Rutherford and Lovett, purchasers of a plat of land some years since.

The bond of the Loan Commissioner for the ensuing year was accepted.

Upon the report of the Committee on Employees, the resignation of Supt. T. T. Hawkes, for relief and rest was accepted. Prof. Hofer's resignation was requested for want of strength to manage the growing interests of the department, and it was decided that the services of Prof. Nihart as Librarian and Instructor in book-keeping should be dispensed with by a different distribution of duties among teachers. Messrs. Graham, Cowgill and Olin and Mrs. Winchip each received an increase of \$200 in salary, Messrs. Olin and Cowgill being given the title Professor.

The purchase of books to the amount of \$450 was authorized, and a new paper cutter was allowed in the Printing office.

The summer advertising was provided for, and the usual extra editions of the INDUSTRIALIST were ordered.

Certain land contracts, long delinquent were cancelled.

Plans for a cattle shed and piggery and for remodeling Armory Hall were presented and accepted, and the Committee on Grounds and Buildings was authorized to call for proposals and let contracts; also to use their discretion in making the current repairs for the season.

Sundry reports of the Secretary and the Loan Commissioner as to delinquent school districts were reviewed, and prompt action was ordered.

The following resolution was passed:—

*Resolved*, That we extend to Hon. T. Dwight Thacher, of Topeka, our hearty thanks for the able, entertaining, and aptly suggestive address of Tuesday evening, and request a copy for publication in one of the large editions of the INDUSTRIALIST.

The Board adjourned to meet on Tuesday, July 27th, at 3 P. M. at which time the annual reports of all officers and employees will be presented, and the matter for the Biennial Report will be selected.

## Required Industrials.

The need of general training of youth to some degree of dexterity in the every-day work of life, is recognized everywhere now-a-days. In this College, each young man spends time enough in the Carpenter Shop to learn how to use the common tools with ease, and do plain work with some idea of exactness. He also gives hours enough to farm and garden work to have clear notions of what they involve, and interest in the success or failure

of varieties and methods. Each finds his critical spirit in such matters strengthened by test of his own abilities and judgment in everyday experience. These occupy one term of each year of the course prior to the fourth.

The young women find a similar provision for their familiarity with every-day affairs in the requirement of one hour a day for one term of the first year, in sewing adapted to their advancement, and in the practice in cooking and dairying required during two terms of the second year. Nimble fingers with the needle may not serve the same purposes as before the sewing-machine snatched the long seams out of the hands of the women; but the ready judgment and taste that make the beauty and comfort of dress are gained only by handling, with careful instruction, the tools that are employed about dress. In the same way, the tact of house-keeping comes by practice under tuition far more readily than under the sharp raps of chagrin and dyspepsia from sour bread, heavy cake and badly-cooked meats.

The required industrials of the course will have served their purpose well in such ways, even if they do not pave the way to skill in these universal arts.

## SOCIETY HALL, June 5th, 1886.

President Breese called the Webster Society to order at 8 P. M. W. S. Hoyt led in devotion. The following programme was rendered: Debate, "*Resolved*, That fashion has wasted more money than vice." The affirmative, D. G. Fairchild and D. E. Bundy, was successfully refuted by the negative, E. H. Snyder and P. S. Creager. Declamation, "Lafayette," M. P. Davis; essay, "Dime Novel Reading," H. E. Robb; declamation, "Unpleasant Surroundings," T. C. Davis; select reading, J. W. Randall; essay, "Reminiscences," F. H. Avery. The Reporter was presented by Jno. Harrison. D. G. Robertson, on invitation, delivered his farewell address to the Society. The following is the programme for the first meeting of the fall term of 1886: Debate, question, "*Resolved*, That future legislation should foster physical instead of mental culture." Affirmative, J. B. Brown and W. R. Browning; negative, J. E. Payne and W. H. Olin. Essay, L. H. Dixon; declamation, D. G. Fairchild. The Reporter will be presented by F. H. Avery. W. J. B.

## SOCIETY HALL, June 6th, 1886.

The Hamilton Society came to order at the President's call. E. B. Colburn led in devotional exercises. G. V. Johnson read an essay on the subject "The Darkest Day." J. A. Campbell read a selection, entitled "The Destruction of Pompeii." S. S. Cobb, the music committee, had engaged the service of an excellent violinist, Mr. T. A. Berry, who gave some music well worth hearing. The violin was accompanied by the organ and guitar, "*Resolved*, That the laws prohibiting polygamy in Utah should be enforced." Affirmative, A. C. Cobb and S. L. Ellis; negative, A. E. Newman and H. H. Myers. Decided unanimously in favor of the affirmative. After a short recess, F. Dinsmore read a selection, E. B. Colburn an essay, and A. H. Greeley delivered a declamation. The music committee was again asked to report. The performers did not get off so easily the last time, as they were called back despite the efforts of the President. The order of extemporaneous speaking was passed, and the Society listened for the last time to Mr. Waters, who graduated this year. Mr. Bassler also delivered a speech. Take it all in all, the last meeting of the year was a good one: all persons enjoyed themselves. All come to our first session next year.

C. A. C.

## CHEMICAL LABORATORY, June 4th, 1886.

Business was brought up first in order to dispose of the motion made by Supt. Graham at the last regular meeting—i.e., that the meeting of the Club be changed from the first Friday of the month to the second Friday; amended to read, change from the first Friday to the evening of the fourth Friday; the amendment was carried, and hereafter the Club will meet on the fourth evening of the month. The first paper was one sent by Mr. B. Buchli, a former graduate of this College, upon "Bacteria." It was a very interesting paper, discussing some of the uses and many of the harms coming from their presence in the world. Next came a paper on the Foundations of Chicago, presented by Mr. G. N. Thompson, who gave us a very clear idea of the present and probable future foundations of the immense buildings in that wonderful city. This paper brought out considerable discussion. Pres. Walters gave some of the defects in the Chicago P. O. building, causing cracking in walls. Mr. Parker read a

pleasant paper on the subject of Mimicry of Animals. He gave a very interesting description of many of the ways in which the lower orders of creation are protected from their enemies by their power of imitating stronger or more fortunate neighbors. This paper caused a lively discussion. L. H. Dixon told us of the baking powders he had analyzed during the last few weeks. He finds in eleven kinds only two which are really pure, and he gives the Dr. Price baking powder the preference in all respects and for all purposes. Mr. D. G. Fairchild, who has also been investigating various frauds and articles on the market, perhaps not so fraudulent but still more useful than otherwise, tells us of a silver plating solution the cost of which is two cents and which sells for twenty-five cents; of Sternberg's Brilliant Polish; of Lustro; of Diamond Dust Powder; and of Celluline,—all of which cost little or nothing and sell for a good round price. Mr. Robb continued this interesting subject by describing to us face powder, tooth tablets, Buckeye Golden Butter Compound, Dutcher's Lightning Fly Killer and Insect Exterminator. Much merriment and not a little real knowledge resulted from the general discussion of all these substances. Mr. Brown gave us some ideas of the variation of the weather at this place since 1860, showing a diagram which gave us much hope that rainfall is really becoming more even in our climate. Motion to adjourn was made, and the Club dispersed to gather after the summer vacation, full of new facts, new energy, and ready for much work in the scientific field.

MRS. KEDZIE.

## MANHATTAN CARDS.

**George Firestone.**  
Livery, Feed and Stable. East end of Poyntz Avenue.

**Burgoyne's**  
Photograph Gallery. Established, 1859. Opposite Purcell's Bank.

**Clother.**  
Wm. Knostman, Ready-made Clothing, Hats, Caps, and Gents Furnishing Goods. Opposite postoffice.

**Fox's Book Store.**  
COLLEGE TEXT-BOOKS,  
School Stationery, Pencils, Ink, Scratch-books, etc., etc. Manhattan, Kansas.

**Barber Shop and Bath Rooms.**  
In basement, under Lemmon & Koller's. 12 shaves for \$1.00. None but the best workmen employed.

P. C. HOSTRUP, Proprietor.

**Allen Bros.**  
Opposite the Postoffice, keep a full line of Groceries, Flour, Fruits, Candies, Nuts, etc. Their goods are fresh and first-class, and prices are low and Goods delivered free in any part of the city and on College Hill. We invite all to call, and we will endeavor to give satisfaction.

ALLEN BROS.

**Manhattan Bank.**  
E. B. Purcell, banker. J. W. Webb, cashier. A general banking business transacted. Bills of Exchange issued on all principal cities and towns of Europe. All collections have personal, faithful and prompt attention of our attorneys. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

**E. B. Purcell,**  
Corner of Poyntz Avenue and Second St., has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, &c., &c., &c. Goods delivered in all parts of the city, and at the College, free of charge.

## A DICTIONARY GIVEN AWAY.

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To the person sending us a subscription to the above-named Magazine for the year of 1886, at \$2.00, we will present a copy of

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J. B. LIPPINCOTT COMPANY, Publishers,  
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(Continued from second page.)

A JUNE ROSE

was the "flowery" subject of Miss Minnie Reed's oration. From the time when Eve first wandered in the gardens of Paradise until now, all her daughters have loved the queen of the flowers—the rose. Long ago she held her courts in ancient Egypt, Babylon and Rome. The rose has ever been a subject of the poet's song, and is one of the golden threads woven in the history and romance of mankind.

Though it be the handiwork of the gods, the rose owes to man much of her beauty and attractiveness. She once had that wild beauty of a gypsy queen; now it is native grace, with culture and refinement added.

The culture of the rose has, especially for the amateur, many disappointments and difficulties; and he is pricked by the thorns as well as rewarded with perfect blossoms. He must cultivate those two virtues, patience and perseverance, as well as his plants, or he will not athen the roses. With a medium amount of labor, we can cultivate the rose with success; for there is nothing of any value that can be obtained without some effort. The greater the cost in labor, the more we appreciate the result. I would say to all: Put them in your windows, on your lawns, in your conservatories, or have them climb over your cottages, and they will repay you with their sweet blossoms. And, as we bring them into our households, their beauty, purity and sweetness will be reflected in our own souls as the good, the true and the beautiful.

TWIN FORCES IN CIVILIZATION

was D. G. Robertson's subject. The two great factors which combined to make up the progress of our nation are liberty and learning. And these have been parallel forces acting against despotism for many centuries.

At the dawning of the Christian era we find in Europe two great classes of people—in the north the Saxon and in the south the Romans. Of the first, every man was his own legislator and executor; the latter were a people in submission to authority by the divine right of kings.

A few centuries later, representatives from both these races settle in Great Britain. They blend together, the Romans becoming more liberty-loving and the Saxons more orderly. The desire for liberty grew until 1215, when King John was compelled to sign that first grant of liberty in all the records of time—the Magna Charta. The dawning of English literature was one of the results of this liberty: universities began to flourish; the Bible was translated.

We trace the effects of these down to more recent times, finding that the history of our own country bears testimony to the fact that educated descendants from this self-same mingled blood settled our colonies, established our independence and made us a prosperous nation. We must instill into the minds of every generation that spirit which will say forever, "Give me liberty or give me death."

A STATESMAN IN EARNEST

was the theme of Mr. E. O. Sisson. In Mr. Gladstone we have an example of extraordinary, almost unparalleled, success. Ever since entering the political field, he has been a leader in England and today stands the most famous of modern statesmen. The steady round of successes in his life is almost unexampled; and, when we consider that he has always been in advance of his party in reforms, this success is all the more wonderful. Not only has he been successful in his chosen work, but also in every other undertaking. He is authority on all points in Homeric study, which is his favorite mental recreation. All these achievements lead us to inquire what there is in his character that has produced such marvelous results. It was not his intellect, ponderous and graceful and wonderful in its power and versatility, although necessary to the accomplishment of his work, that has made his success; but the true secret of his power lies in his conscientious, whole-souled earnestness of purpose and execution. Whatever work he took up, let it be politics, history, religion, philanthropy or literature, he threw into it all his vast powers. It is his deep earnestness which lends half the charm to his oratory. He has made a hobby of everything he has

studied and yet by his versatility has escaped being a hobbyist. Earnestness of purpose has borne him through the bitterest hatred and opposition, to the grandest success and placed him, in his old age, on the very pinnacle of fame and honor.

AT HOME YET HOMELESS

was the name of the picture presented in words by J. W. VanDeventer. "Westward the course of empire takes its way" was Bishop Berkeley's prophecy; and every year, every day, since then has witnessed its fulfillment. Our forefathers conquered alike the eastern forests and their savage denizens, and in their rude huts found the shadow, perhaps the substance, of a home. Let us follow the career of the western home-seeker: Goes to work with courage and cheerfulness, encouraged by the thought of a new home; thoughts are all on future prosperity, labor limited only by endurance, sinking self in surroundings, reading no books, knowing nothing of the busy world, and soon hedged in, body and soul, by the limits of his farm; soon his face loses its former cheerful expression, vigorous manhood gone; his wife, too, loses the charms of womanhood, the children, like immortal Topsy, "just grow." The new home is finally built, but they soon realize that something is lacking—it is not the home they hoped for—they are at home yet homeless. They have missed all the pleasures that lay unnoticed in their pathway—couldn't appreciate them.

This is not a fancy—real all around us. One of the chief needs of today is more homes.

COMMERCIAL VALUE OF INTEGRITY,

Geo. W. Waters. The glow of satisfaction on the face of one actuated by noble principles speaks volumes for character as a source of happiness. Value in money is based on intrinsic worth; and as our government money circulation is based on the value of the gold dollar, so must character be made the basis of credit—the security for individuals, for communities and for nations. Our civilization is very much the outgrowth of regard for mutual welfare. The greatness of a nation does not consist of gold and silver nor houses and lands, but of character. Character inspires labor and capital with confidence in each other. Men should see deeper truth than the maxim, "Honesty is the best policy." Character is no less the basis for national than for individual credit. Loss of character makes bad citizens, and these cause the downfall of nations. Stable society is where law and custom foster industry. All difficulties attending the solution of our social problems must find a remedy in personal integrity.

LEADERS OF PUBLIC OPINION,

W. E. Whaley. The world has always had its leaders, but the qualities which constitute a leader in one age fail in another. The age in which people are moved by mere sentiment is fast passing away, and the age of reason is taking its place. This age calls for thoughts. Six hundred years ago, it was possible for Peter the Hermit, by his unreasoning eloquence, to rouse all Europe to one cruel, mighty crusade. Such a thing is impossible today. High among the factors that have brought about this result stands the modern newspaper. Whoever directs the reading of the people controls their thoughts. He is the real leader. The past is the age of the orator; the present, the age of the editor. Each day the editor is made aware of the doings of the world, and is as often asked his opinion of them. He must be a man of much decision. On every subject that leads mankind, the editor should lead the people to think correctly. The ideal writer must possess a spirit of justice, of honesty—such a spirit as condemns the advocacy of any idea for mere gain, and upholds right wherever found. Good common sense, too, is of value in every calling, but in none more than journalism. It is safe to predict that no editor can gain and hold the confidence of the public without the qualification of adhering to conviction; without this, no young aspirant can hope to become a Greeley, a Bennett, a Pulitzer or a Nasby.

It is safe to predict that these most powerful of modern leaders will, in the near future, devote their strength to purer, nobler, loftier aims.

THE BATTLES OF TRUTH.

was Miss F. Henrietta Willard's theme. A love for old friends, old thoughts and old ways is natural to all humanity. It is a wise provision for checking ever-changing opinions; and yet, at times, this spirit of conservatism has been allowed to control whole masses where honest thought should have taken the lead. The so-called conflict of science and religion, more properly named "conflict of inferences of religion with theories of science." Indignation was aroused when the first statement was made that the earth is round. Bruno was burned at the stake for asserting that there might be other worlds. These are but two instances of the struggle of new truths for recognition. It has always been the same: each new thought has had to fight many battles with conservatism and prejudice before it has gained acceptance.

Newton, Laplace, Leonardo da Vinci, the Herschels and many others were long opposed by the schoolmen and their successors with whom they associated. Will the time ever come when truth alone will be sought by scientist and religionist—every thinking man? when prejudice will be laid aside and knowledge be the goal which all are approaching? Shall it not be that men will learn to read God's two great books—Nature and the Bible—with no other object than truth?

OPTIONS AND FARM PRODUCE.

was Jno. L. Wise's subject. Dealing in options is an industry peculiar to the nineteenth century. As long as betting upon prices is fair, it may be a benefit to the producer by bringing information to light. In grain dealing, as in any legitimate business, the prices are controlled by the ordinary law of supply and demand, and, hence, are not subject to very considerable fluctuations. In illegitimate dealing in futures, prices are not generally regulated by supply and demand, but by artificial appliances through which the producer is always the loser. The relation of the option dealer to the farmer is, "Heads, I win; tails, you lose." To secure this end, newspapers are bribed to circulate false reports.

What effect has this gambling on a community but to undermine the very foundations of public morals? It places honesty and virtue at a discount and fraud at a premium. Falsehood is at par with truth, and knavery is made honorable. But what can we do about it? Done as it is, within the bounds of law, legislation cannot reach it. Only one remedy: clearer views of right and wrong.

Lieut. Nicholson had the College cadets out on the campus for the benefit of sight-seers on Wednesday evening. Large crowds of people were gathered to see them drill; and their appearance was really worth seeing. Who doesn't like to see a soldier in uniform?

Board and Rooms.

No provision for rooms and board is made at the College. The students all find homes in families or in family boarding-houses, at rates varying from \$3.00 to \$4.00 a week for board with furnished room. Lists of boarding-places, with prices and accommodations, can always be had at the President's office, and students are required to notify the President of their rooms when selected.

Lists of rooms for rent without board may also be had by those who wish to board themselves. Directions and advice are gladly given by any of the officers.

A Good Education Pays.

1. In dollars and cents. All testimony of statistics agrees in showing that educated laborers, of all ranks, have better work and better wages than the uneducated.

2. In influence and position. Careful estimates make it certain that the chances of promotion to places of trust and power among men are almost two hundred times as great to an educated man as to an uneducated.

3. In usefulness. The bulk of good work in the world,—discovery, invention, government, philanthropy and religion,—is brought about by those who learn to think by study.

4. In enjoyment. Our pleasures grow out of what we are ourselves more than from surroundings. A well-trained man sees, hears and handles a great deal more of the world than an untrained one. All things do him good, not so much because he owns them as because he understands them. He always has good things to think about.

Earnings.

The labor of the students in the industrial departments is principally a part of their education, and is not paid for unless the student is employed—outside of required hours of labor—upon work for the profit of the College. Students are so employed upon the farm, in the gardens or the shops, and about the buildings. The labor is paid for at rates, varying with service rendered, from eight to ten cents an hour. The Superintendents strive to adjust their work to the necessities of students, and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly pay-roll for the past year ranges from \$377 to \$456.

Many students obtain work in the city or upon neighboring farms, and so pay a part of their expenses. Students employed in the shops are allowed to work somewhat for their own profit, in the manufacture of articles for sale and use. In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide by earnings outside of term-time, or from other sources, for the larger part of their expenses. The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education if he has the ability to use his chances well.

Expenses.

Tuition is free, and no general fee for incidental or contingent expenses is charged. In a few special departments of instruction, the following payments are made in advance to the Secretary:

In analytical chemistry, the students pay \$3 a term for the chemicals and apparatus used in their laboratory practice and analysis.

In the printing office, young men, in their first year, pay \$3 a term for office expenses. Advanced students have the use of the office for the work performed during the industrial hours.

In telegraphy young men pay \$3 a term for office expenses.

Young women are furnished both printing and telegraphy free of expense, these two offices, with the Sewing and Cooking Departments, being provided especially for their industrial training.

Lessons in instrumental music, two a week, are from \$10 to \$14 per term, according to its length; one a week, \$6 to \$8.40. One half is to be paid to the instructor in charge with the first lesson, the other half at the middle of the term.

The cost of text-books at the book-store is, for the first year about \$4 a term; for the second year, \$2.75; for the third year, \$7.50; and for the fourth year, \$5.50.

Board and washing are not furnished by the College. Board, with furnished room, can be procured in private families at from \$2.75 to \$4 per week. Some students board themselves at even less cost, and rooms for the purpose can be obtained at a rent of from \$1 to \$2.50 a month. Washing costs from \$0.50 to \$1 a dozen pieces.

Ordinary expenditures, aside from clothing and traveling expenses, range from \$100 to \$200 a year.

General Course of Study.

Each student is expected to take three studies besides one hour's practice in an industrial art; and variation from this rule can be only with consent of the Faculty.

Parallel courses are offered to both sexes with such differences as their necessities seem to call for. The following gives the general scope of the two; but fuller explanations are found in the annual catalogue.

FIRST YEAR.	FALL TERM.	Arithmetic.
	WINTER TERM.	English Analysis.
SPRING TERM.	Algebra.	Geometrical Drawing.
	Book-keeping, Drawing.	United States History.
FALL TERM.	Algebra.	English Composition.
	Horticulture.	Botany.
WINTER TERM.	Algebra completed.	Elementary Chemistry.
	14 Lectures in Military Science.	Horticulture.
SPRING TERM.	Geometry.	Practical Agriculture
	Organic Chemistry.	or Household Economy.
SECOND YEAR.	Geometry completed.	12 Lectures in Military Science.
	Drawing, 5 weeks.	Entomology.
FALL TERM.	Trigonometry and Surveying.	Analytical Chemistry.
	Physiology.	General History.
WINTER TERM.	Mechanics.	Agricultural Chemistry.
	Rhetoric.	Civil Engineering.
SPRING TERM.	Drawing, (or Hygiene).	Chemical Physics.
	English Literature.	Political Economy.
THIRD YEAR.	Agriculture or Literature.	Meteorology.
	Psychology.	Zoology.
FALL TERM.	Logic, Deductive and Inductive	Structural Botany.
	Geology.	United States Constitution
WINTER TERM.	Political Economy.	Geography.
	POLITICAL ECONOMY.	Political Economy.

# THE INDUSTRIALIST.

PUBLISHED BY THE PRINTING DEPARTMENT.

KANSAS STATE AGRICULTURAL COLLEGE.

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No. 44.

## KANSAS STATE AGRICULTURAL COLLEGE.

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### COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

College Lands and all business connected with their sale are in charge of the Land Agent.

Bills against the College should be presented monthly, and, when audited, are paid from the office of the Treasurer, in Manhattan.

All Payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka.

The INDUSTRIALIST may be addressed through Prof. E. M. Shelton, Managing Editor. Subscriptions are received by Supt. Geo. F. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Kellerman, chairman of the committee on Museums.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding places, etc.,—may be obtained at the office of the President or by letter.

### Baccalaureate Sermon.

[By Pres. Geo. T. Fairchild, Sunday, June 6th, 1886.]

TEXT—*Genesis iv, 9.* “Am I my brother's keeper?”

The baccalaureate sermon has long had the prestige of a parting lesson. The thought of separation between teacher and pupil, with a succession of lessons still reaching on into the busy world, adds interest to the plainest truths. The earnestness of these last words, more than their piquancy or polish, will be remembered till we meet on the other shore.

And so, as the mother calls after her wandering boy to give him, not some new or long-neglected admonition, but a simple repetition of lessons learned at her knee in childhood, your foster-mother cannot let you go from her doors without new emphasis upon the old-time truths of life. The new things may rise with each step in your daily progress: the true things must go with you through all the journey.

With the expectation, then, of recalling many a familiar lesson of the past years, I have chosen to dwell today upon the Brotherhood of Man, as involved in a progressive civilization; and present for my text the question of Cain when arraigned before the accusing voice of his brother's blood,—“Am I my brother's keeper?”

The simple facts of Abel's prosperity, Cain's envy, hate, murderous blow, accusation and banishment are told in the fourth chapter of Genesis. Cain's quibbling question, found in the ninth verse, suggests principles which underlie all philanthropy. Its correct answer by each individual makes character, so far as human interests reach; indeed, the treasure in heaven, beyond the reach of moth and rust, is laid there only through the sincerity of our efforts here to follow the answer of conscience with deeds. “He that loveth not his brother whom he hath seen, how can he love God whom he hath not seen?”

And yet, to turn the pages of history without reading beneath the surface glow and glare of thrones and battles and legislation, one might think that the sole object of living,—the aim of individual, society, nation and humanity,—is to claim and fight for rights. The first boast of our age, over which we glory in wild huzzas, and in which we are ready to fight for supremacy, is that here each man may find the machinery for enforcing his rights against the world. Is it not just possible that in our enthusiasm for free thought, free speech, free men, we have forgotten that every individual right brings its correlative duty? My right to think, to speak, to act as a human being *may*, implies, with equal foundation, my duty to think, to speak, to vote, to act, as a human being *ought*: and my actual claim to freedom rests finally and solely upon the sincerity of my regard for duty. My place and rights as a man are held by my worth as a man.

Let us consider briefly the appeals of duty to human nature, felt through experience and knowledge.

The first limit of kindness due to our fellow-men is felt in the kindling affections and quickening sympathies of childhood,—extended in the early aspirations of youthful friendships, strengthened in the life-long partnerships of mature life, and mellowed by the fatherly and motherly interest of age. All human sympathies, natural as the form and stature, show the propriety of regard for our neighbors. Then comes the clear announcement of duty in conscience. Reason pronounces upon the fitness of such relations of human beings, compels assent to the law of duty, and enforces its applications; feeling gives an impulse toward right action when seen, and approves with satisfaction every duty done.

Thus we are all “a law unto ourselves.” Not even Cain lacked a ready answer to his question in his human nature; he only hoped for relief from its answer elsewhere. Instead of relief, he found full confirmation and the heightened effect of conviction. Then came the last half of the decalogue, to enforce duty by guarding our neighbors' rights in prohibition of every trespass; and finally the summing up of duty to men in “Thou shalt love thy neighbor as thyself.”

Nor is this all: the underdrift of thought and sentiment through all time has been toward a clearer recognition of duty. The history of peoples—if not of nations—shows a gradual development of tenderness in the various relations of life. The chief interests of life have been found in affections. The highest rank has been claimed for sentiments of philanthropy. The wise men of all ages have placed the chief rewards of life in the satisfaction springing from duty done. In later ages, the chivalry of the times has gained its prestige by devotion to human interests; and in all our modern literature the hero of a hundred victories yields to the hero of a single sacrifice for duty to humanity. What poet or philosopher dare mention for praises an Alexander before a Leonidas, or a Bonaparte before a Winkelried?

The fact is that all calm thoughts and all clear intuitions and all lessons of experience show that individual happiness springs from duty. The *doing* of good, rather than the *getting*, exhilarates and stimulates with the genuine thrill of joy. Even the gift we prize brings most of pleasure in the heart-felt thanks we can return; and then we feel so fully the superior blessedness of giving that we seek to outrival friends in larger and more costly gifts, vainly selfish in our longing for highest happiness. We all know that the use, not the possession, of strength or talent, wealth or wisdom gives the chief pleasure, and that miserly hoarding brings all these to nought. “From him that hath not shall be taken even that which he seemeth to have.” We can even see that most of the hypocrisy of the world is an unwilling homage to the dutiful spirit of philanthropy. Common forms of politeness and courtesy are the signs of duty silently recognized and unwittingly appreciated.

It would seem, then, that selfish interest alone would lead into exercise of du-

ty in all the relations of life, since all must recognize the truth of Tennyson's couplet,—

“All men find their own in all men's good,  
And all men join in noble brotherhood.”

But in experience the study of selfish interests,—self-seeking in any form,—blinds to true interests at once, unless it ceases to be selfish; and the mass of self-seekers lose entirely the clear view of joy through righteousness while grasping the first object of desire. So the fact is that the Brotherhood of Man is too often wholly ignored in matters of daily concern. The whim of the hour, or the pampered passion of a life, often outweighs all general interests. Health, wealth, wisdom and virtue—all the sources of welfare—are forgotten for some trifling possession that seems to please our fancy or inspire our envy. Thus we become, like Cain, jealous of our fellowmen, and seek to escape the burden of being our brothers' keepers. “Every man for himself” becomes the motto of life as of trade, and the devil takes not oftener the hindmost than the foremost.

There is no public question independent of this duty to humanity, and no private life can ignore it. The interests of the race are always paramount; and the being who ignores them, be he millionaire or tramp, ranks himself with the beasts of prey,—outside the “noble brotherhood.” Human law and authority gain all their permanent force from the recognition by the people of this fact. It is the power behind the throne, supporting all government, and fostering all civilizing tendencies. The army and the navy are the “arms of law” because men are their brothers' keepers. Prisons and gibbets are a necessary part of our means of protection, not from our neighbors, but for our neighbors. Schools, colleges, churches and societies find their recommendation in the success with which they guard such interests; and any company or clique or clan that must thrive by ignoring humanity has no proper place in civilization.

Against the grosser violations of this rule of duty we unite through law and organized government. The forms of law, criminal and civil, express the testimony of ages to the wrong of certain overt acts. With advancing civilization the world finds an increasing range of so-called crimes against society, and seeks to check them by restraining laws and penalties. But it is a noticeable fact that these laws in the mass are chiefly prohibitory. At the best they touch only what the present generation regards as rights to be guarded by force. All the keen cutting wrongs to human affections that blast life here and hereafter, the strong arm of law cannot guard against, and can seldom recognize. The tender ties of husband and wife, parent and child, brother and sister, teacher and pupil, or even the less delicate relations of master and valet, mistress and maid, partners in business, occupants of the same house, neighbors in the same street, fellows of the same association,—no force of law can reach. The appeal is solely to our inner sense of duty to humanity. The

# THE INDUSTRIALIST.

SATURDAY, JUNE 19, 1886.

EDITED BY THE FACULTY.  
E. M. SHELTON, MANAGING EDITOR.

man who in brutish raving beats his wife may be beaten himself; but no outward force can touch the almost fiendish heartlessness that inspires such an act. A father may be compelled to feed and clothe, after a fashion, his own offspring; but no force can drive, or reward can bribe, him to furnish the loving kindness of fatherhood, which the child needs quite as much and indefinitely longer. The unnatural mother whose passionate heart rebels against the constant wearisome care of her babe with violence or bodily neglect may suffer the extreme penalty of law; but if the same unnatural rebellion robs her babe of the loving interest in the growth and welfare of its human nature, and neglects all hopes and sentiments and virtues,—those things which raise humanity above the brute creation,—law has no name for the crime. So everywhere the chief duty of life cannot be enforced by any visible law, and only the lower, less lasting, interests are guarded by the best of governments under the name of rights.

I have dwelt thus fully upon the weakness of organized law, that you may see how much deeper, broader, farther reaching is personal duty than any law can define. It gives all authority to every law, and still it extends on every side to interests not counted in the rough estimate of legal rights. Among such interests are to be found most of the sources of bitterness in the great social questions of every day. No full solution of the labor question, the land question, the trade question, the transportation question, the womans' rights question, the franchise question, can be reached by legal enactment. Law piled upon law and enforced to the letter can save but the remnant of rights, after the chief have been lost. The sense of duty to mankind must be the court of final resort—a court which no constitution, written or unwritten, can limit or constrain. For this duty, like the quality of mercy, "is not strained, it droppeth as the gentle rain from heaven upon the place beneath."

Law makes less dangerous the unruly passions of men, and order at the point of the bayonet under martial law is less unsafe than anarchy; yet the barbarity of martial force is but one step above the barbarism of anarchy. Our boasted civilization will have lost its right to the name when the masses are held in check only by the strong arm of the law.

Moreover, there are forces at work to develop antipathies instead of sympathies. The rapid growth of population, wealth, intercourse and knowledge during the past twenty years has furnished the richest fields for enterprise, and at the same time for chicanery. Like weeds in the richest soils, contrivances for pure speculations upon others, necessities have almost choked the natural means for supplying men's wants. The heat of natural competition has been heightened by every artifice of gambling, till some kinds of business seem but a scramble of selfish greed for what belongs to all.

The natural advantages of uniting a multitude of forces under the order of a single head in great manufactories have grouped men so closely with the machines they attend, and have separated

them by so many removes from the immediate ruling will of the great corporations, as to modify the influence of their manhood. The world may forget to recognize under the name of operatives the men, women and children whose lives, fortunes and sacred honor are in its keeping.

The multiplication of legal enactments, suggested, perhaps necessitated, by the rapid change of circumstances, has given undue importance to formal law, as if it alone were the criterion of human action; and multitudes, high and low, hide their consciences today under the thick-spreading branches of legality. Lawyers easily magnify their office to surround simple equity with the mysteries of formality; and would-be statesmen clothe their little bills for police regulation with all the dignity of great moral reforms.

Partisan spirit, once kindled by great moral questions, and so a safe-guard to national purity and individual liberty, becomes, under such stimulants, a mere eagerness for power through numbers. Speeches become mere "buncombe," and party measures are mere bids for the votes of the ignorant, selfish or unscrupulous men. Not the interests, but the whims of constituents, control the leaders, and true statesmanship is stifled.

With the wonderful development of means of communication, curiosity has been stimulated, and the gossip of crime, folly and weakness that pries into the closets of the lofty and the dens of infamy brings all to the eyes of a greedy world. The familiarity that breeds contempt mingles with that which leads men easily to "endure, then pity, then embrace." So the world loses both respect for the wisdom of men and disrespect for their vices. The vices are imitated and the wisdom is decried. Mimic manhood, early in its teens, swaggers like the bully and spouts like the oracle.

The shrewd guesses and keen foresight needed to meet the demands of growing commerce easily drift into associations with the shrewder contrivances and the keener insight of sharp practice upon neighbors in the same trade. Sometimes it seems as if the maxim "All is fair in war" had been modified into "All is fair in trade." This appears most prominent in wonderful contrivances for adulteration of food and clothing, so that every household feels the influence of fraud.

Perhaps the strongest influence in this direction of recklessness comes from the promiscuous commingling of strangers. We jostle, every day, against our antipodes, whose faces, form, clothing, gestures, manners and speech barely suggest a common humanity. The combat of customs is even less than the competition for place and employment. The thick stream of humanity flowing down Broadway or State Street gives little heed to us, and we as little to its individual wants. Is it very strange if men lose somewhat of the sense of responsibility in this stream and crowd for the space they occupy? All those natural ties that heighten the force of duty are wanting. The very mob that brings riot and desolation is gathered with no common acquaintance or mutual interest, scarcely with common speech, to shout "anarchy" because there is nothing else to do. The very spot of earth they stand on is without associations of kinship or friendship. Their very freedom suggests license, since every man's hand is against every man in the struggle for existence.

Our very special efforts in philanthropy partake of the same weakening influence. The multitudes of drifting, unknown poor make personal acts of charity a temptation to professional beggars and professional tramps. Our only safeguard seems to be in organized and systematic agencies of charity. So our care for the deserving poor—our chance to act the part of the good Samaritan—is delegated to a hired philanthropist, whose monthly call for a dollar or two, or annual gathering of cast-off clothing, is our sole reminder that "The poor ye have always with you." Thus while it is true that the machinery of philanthropic aid to suffering humanity in almshouses, hospitals and asylums was never so good as today, it, at the same time, hides from our eyes the personal duties we owe to the race.

Even missionary efforts too often gain the glamour of vast enterprises that shine from a distance, and attract by the splendor of achievement rather than by the need of souls hungering for the bread of life. When we pray "Thy kingdom come," we forget that Jesus said "The Kingdom of God is within you," and "like leaven," spreading only by contact. To the great seething mass of untutored, vicious humanity we offer a distant exhortation which they in turn receive with jibes, or clamor for the "loaves and fishes."

On the other hand, the same distance awakens distrust and disrespect for the honest efforts of philanthropists. The distinctions of thought and interest are thus made greater till the extremes of society despise and hate each other.

Such are the prominent tendencies to be met by an earnest philanthropic spirit of "good will to men." The mechanism of society is not wrong, but the adjustment of good will to all this new machinery is lagging. A great enlargement of heart toward man as man is needed everywhere. Every organization that can bind more closely men of different tastes, thoughts and callings is to be welcomed. Every mode of culture and instruction that can give a fuller experience of each other's life and wants must be built up. The public school, that must be open to every child of Adam, must not be too low for the most favored nor too high for the least teachable. The open doors of college and university must welcome, to the same privileges, the children of the lofty and the lowly; and if possible recognize the greater need of those whose early surroundings tempt to neglect of themselves and distrust of their neighbors. Men of means must feel themselves to be the stewards of the world, whose wisdom should devise liberal things for mankind. The use of wealth requires a deeper wisdom than the gaining it. The rich man is not called in philanthropic feeling to scatter his wealth to its misuse in vicious and wasteful hands. No communism or socialism that abolishes or distributes wealth, can preserve the talents, judgment or strength which make wealth possible. But the good will which recognizes duty in the use of wealth, as of any power, for humanity's sake, should rule the rich man's conduct of his possessions.

At the same time, the brotherly love is needed for every human being, however humble and however tried. The man whose sole ability is in his hands, owes to the race his all. He can best use it, as all can, in meeting his daily wants for sustenance, growth and honest joy; but he ought to use it for all.

The toil of hands and heads and hearts must all go into the common weal as individual responsibility can make it; and the man who uses his own wisdom, wealth or toil against the common interests, falls short of duty. If, then, the temptations of business opportunity suggest neglect of duty to men, a halt is needed. If urging of crowds impels to failure in contract, violation of confidence or outrage to property rights, humanity must check the spirit of misrule. For man in every station is his brother's keeper, to guard all interests up to the extent of his ability.

Do not suppose that this must overturn established methods of business and life. It must modify the passions and check the greed of men; but it need not change the machinery. The great factory needs, and can use, more soul in its motion. The business mart has room for honest dealers now; there would be far more room were all seeking only the profit of fair bargains. The honest thrift of the laboring poor is now the source of his comfort: it could be still more so, with no waste of strikes, riots or lock-outs. The honest farmer whose grain and fruits always prove true to the sample, thrives now where known; he would have wider recognition did he not endure the suspicion which less honest neighbors have cultivated. The very law of competition which now seems cruel, would, with the reign of duty, become a simple means of fairly distributing abilities and means. The wide differences in achievement which now seem the freaks of fortune and are causes of envy and jealousy, might become healthy stimulants to exertion and thought. The height of power and ability could suggest the range of ever-widening usefulness instead of grasping selfishness.

So the finer sensibilities and more cultivated tastes, with our machinery of contact, can reach more of the race than ever before. There never has been a time when right ideas, clear perceptions, artistic tastes, pure sentiments could travel as fast or be as well understood as today. The machinery of commerce and communication is a grand civilizer, if used in the spirit of philanthropy. We shudder at the brutality which this rapid transit has brought to our doors; but Oh, what an elevation is even the present day of violence above that when Richard Lionheart, favored Prince of Britain, could feast on Saracen flesh and smack his lips over its abundance! These centuries of growth in thought and deed have been centuries of growth in heart on the whole, and there is no reason to despair of results.

But all this machinery brings upon each individual a greater burden of responsibility. The engineer who bears in his hand the lives of a thousand passengers, or the switchman whose careless turn of the wrist can dash a whole train-load to destruction, may stand as a sample of men and women throughout the land. Our every act counts now in the great commotion as never before. Our righteous efforts lift humanity; our "good deeds in a naughty world" shine farther round it now than ever. So our misdeeds strike larger game, and our bad thoughts damage the race.

Especially is this true of men and women whose peculiar opportunities of training or culture give them prestige as leaders, or privileges as experts. The world looks up to men of practical business training on the one hand, and to men of thoughtful study on the other, for the word of command or advice that

may save or ruin millions. Though the man of wisdom is less of an authority whose *ipse dixit* settles disputes, his "words fitly spoken" reach many hundred times as many who can think his thoughts after him, and so become wise themselves.

Such men must not lose their opportunity now. To teach is the business of knowledge. "Pass on the light" has always been the motto of learning. As Guizot says, "When a man acquires a new truth—when his being in his own eyes has made an advance, has acquired a new gift, immediately there becomes joined to this acquirement the notion of a mission." So we need not fear lest educated men and women will "hide their light under a bushel." But will they use it rightly? Shall love of fellow-men make them wise unto righteousness? Or shall love of power make them crafty for evil?

To you, my friends of the Class of '86, this peculiar responsibility has a double significance. Trained in a college that seeks to reach the more practical problems of life with superior intelligence, your attention to these questions of social upheaval covers both extremes. Your sympathies of kinship and handicraft help you to see the worries and hardships of the laboring poor, while your increasing acquaintance with great forces in production reveals the entanglements and temptations of the men of enterprise. The world hopes for calmer views of these questions on your part than either extreme can furnish. The world expects you to do the best in such problems—to bring heart as well as brains to the task. Your own Senator appeals to "you and such as you to meet the exigencies of the hour in harmonizing the feelings with the interests of capital and labor—of wealthy and needy." You feel, yourselves, the imperative need and the grand opportunity. Are you ready? Are you equipped for the duty? Can you put your appetites and passions and affections under control for duty's sake? Can you practice "good will to men," and so preach it with effect? Can you recognize the Brotherhood of Man by subscription to the golden rule of our elder brother, the Christ? Can you acknowledge in this "noble brotherhood" the fatherhood of God?

The philanthropist whose faith reaches no farther than his wishes will falter before the mass of distrust and malice that today, as in the time of Cain and Abel, pits half the world against the other half. But with the faith that prays "Our Father," a life spent in work for our brother, even against apparent odds, is successful. The eyes of such faith are opened to a host of forces that, like "the mountain full of horses and chariots of fire round about Elisha" are arrayed in favor of duty and truth. An earnest Christian faith must make you a philanthropist, and all your efforts without it are likely to fail. "Christian life consists in faith and charity," says Luther; and charity without faith is hopeless. With your faith in the Father God unshaken, you can hold fast to truth against the world and for the world, believing with Bryant—

"Truth crushed to earth will rise again,  
The eternal years of God are hers."

But without such an Everlasting Father where is truth? or where is anything worth saving? A brother man is but a thing to the Godless anarchist; an individual man is but a drop in the bucket of happiness to the atheistic socialist; but to the Christian philanthropist every

man is a brother entitled to the treatment we shall wish we had given when we stand equal before the one Father of All. In that great day of final judgment, may each one of you hear the testimony, "Inasmuch as ye have done it unto the least of these, my brethren, ye have done it unto me."

## THE INDUSTRIALIST.

SATURDAY, JUNE 19, 1886.

### CALENDAR.

1885-86.

FALL TERM.—Sept. 10th to Dec. 18th.

WINTER TERM.—Jan. 5th to Mar. 26th.

SPRING TERM.—Mar. 29th to June 9th.

June 9th, Commencement.

Persons receiving the "Industrialist" need have no fear of bills to come; for the paper always stops with the expiration of subscriptions, unless continued by favor of a friend or of the College.

### BONDS WANTED.

School District bonds issued on College blanks will bring more than par value at once. Township and city bonds are also wanted. Address T. P. Moore, Holton, Jackson Co., the College Loan Commissioner.

### NOTICE TO BUILDERS.

Sealed proposals for refinishing Armory Hall—wood and iron work, plastering, and painting—will be received at the President's office up to noon of Tuesday July 6th. Plans and specifications may be seen at the above-named office after June 15th. The right to reject any or all bids is reserved.

The ox-eye daisy is reported by the botanic students to be quite abundant upon the fields surrounding the College Farm.

The contract for the construction of the experimental piggery and cattle shed has been let to Messrs. Hulse & Moses, of Manhattan.

On our last page may be found more of the *Mercury's* report of Commencement exercises. Our space was too limited to print it last week.

J. W. Lawrence, Professor of Mechanics and Drawing in the Colorado Agricultural College, spent a portion of Wednesday afternoon at the College.

Prof. Shelton will attend the meeting of the Professors of Agriculture and Horticulture, to be held at Purdue University, Lafayette, Indiana, June 29th and 30th.

Mrs. Kedzie went to Topeka Wednesday. From Topeka she goes to Ottawa, there to stay until the meeting of the National Educational Association in July, when she returns to Topeka.

The INDUSTRIALIST extends its congratulations to Mr. and Mrs. J. R. Kreagan, of Milford, whose marriage occurred on June 10th. The bride, Miss Lizzie Cox, graduated from this College with the Class of '80.

President and Mrs. Fairchild started East for a two weeks vacation Thursday. They go directly to Ames, the seat of the Iowa Agricultural College, of which institution a brother of Mrs. Fairchild is a Professor.

We are grateful for the many kind words spoken for the College by numerous papers during the week past. These words will bear fruit, probably unconsciously, in persuading more people to visit and attend the College.

J. H. Calvin, of '84, and F. Henrietta Willard, of '86, are now plain Mr. and Mrs. Calvin. The wedding ceremony took place, on Wednesday, at the home of the bride, and in the presence of a few friends only. Our good wishes go with them.

Supt. Thompson and wife will start for California early in July, there to remain six or seven weeks. Mr. Thompson is a native of the Golden State, and in greeting old scenes and friends, and in the wonderful journey to and fro, will get rest and no end of enjoyment, as we all hope.

The experimental piggery is to be a one-story stone structure having ten pens, with feed bins and a room for cooking feed, and storage room for bedding. The main walls of the cattle shed are also to be made of stone; it is to have two stories, the upper of wood, the building to occupy a space 24 x 42 feet.

The Hopkins raspberry and the Early Harvest blackberry are, in a measure, retrieving the reputation of these classes of small fruits on the grounds. The severe winter injured many sorts, and the dry fortnight past has destroyed the prospects of fruit upon others; but the two berries named are now giving us more fruit than we hope to get from all the rest together.

To anxious friends who are asking what makes so many brown leaves in the orchard, we may answer them; much of the trouble is due to the reappearance this year, rather earlier than usual, of the troublesome "twig blight," that has affected so generally trees of some varieties in this vicinity for two or three years past. The only check against the progress of this more troublesome than dangerous disease is the pruning away of the affected twigs, a work, as may be easily seen, of more expense than profit. A part of the appearance of brown leaves is due, however, to the use of the mixture of London purple and water which we employed for the prevention of the attacks of the apple worm. While it is practically effective for this purpose, there remains the drawback, in all degrees of dilution of the mixture that we have so far tried, that the poison will destroy more or less of the tender foliage. The mixture used this year was in the proportion of one pound of London purple to sixty-five gallons of water, purposely taken as being the average of the different mixtures recommended by those who have tried this plan of fighting the apple worm. We shall continue the experiment next year, employing, however, even smaller amounts of the poison, in the hope of finding a strength of the mixture that will be still an effective protection to the fruit while harmless to the leaves.

### Industrial Arts.

The training in these departments is designed to be systematic and complete in each, so that the student, following a single line diligently through the four-years course, gains the essentials of a trade and a reasonable degree of skill. Those who wish only a general acquaintance with the arts can take shorter courses in several of them; but all are to select with a definite purpose. In the established course, young men are required to take the regular term in the carpenter shop and on the farm and gardens, whatever the industrial chosen; young women are required to give one term to sewing, one to practice in the kitchen laboratory, and one in the dairy.

*Agriculture and Horticulture* are required of young men as industrials during one term of the second year and one term of the third year. In these, practice is made to illustrate and emphasize the teaching, and covers essentially the same ground.

*Cooking*.—During the winter term, the young ladies who have lectures on Household Economy are required to cook one hour per day. They are taught various methods of making the substantial articles of food, as well as to spend some time on the dainty dishes. During the term, they have practice in waiting on the table, in serving guests, and in arranging for evening companies; putting into immediate practice the lectures of each day.

*Dairying*.—During the spring term, daily instruction and practice in the different branches is given to ladies of the second year by the Instructor in Household Economy. Here the regular daily work is supplemented by a short course of lectures intended to explain the best practice in the arts of butter and cheese-making, and to give the reasons therefor. The following topics cover, in the main, the instruction given in the class: Influences affecting the quality and quantity of milk; butter-making; the household and factory systems of cheese-making; creameries; "deep" and "shallow" setting systems; packing and preserving butter.

*Work in Wood and Iron*.—All students enrolled in classes for woodwork will be given lessons in sawing and planing to test their skill, and advanced as fast as their work will warrant. Students who desire to learn the trade of carpentry will be given work in the direct line of that trade as far as possible. Work on roofing, framing, bridge work and stair-building will be done by models. Careful instructions will be given in sharpening, fitting up, and taking general care of all tools required in the work. Carpentry is required of young men during one term of the first year with especial reference to facility in use of common tools.

In iron work, instruction is given in ordinary work,—forging, filing, tempering, etc.

*Sewing*.—Young ladies are taught in all ordinary forms of sewing with needle and machine, fitting and trimming dresses and other garments. A straight-line system of cutting and fitting is taught and systems are furnished to students at wholesale rates. They may furnish materials, and work for their own advantage during the hour of practice, under the direction of the Superintendent. One term of sewing is required before the completion of the first year.

*Printing*.—Two courses are pursued in this art. In one the student is taught the implements or tools used in typography, and how to use them; composition; imposition; corning proof; technical terms; presses and their workings; and the general duties of a first-class workman. Everyone is encouraged in the study of the rise and progress of printing and related arts. Habits of accuracy and thoroughness are required, in order to advancement. The second course of lessons, alternating with those in the first, embraces instruction in

spelling, capitalization, syllabication, punctuation, proof-reading, preparation and criticism of essays, and such work as will make the student accurate and expert in language. Wilson's Punctuation is the text-book; but much of the instruction is oral,—such as grows out of every-day experience of the office.

Admirable drill is furnished by the INDUSTRIALIST to all, but especially to those who take the full course. The printing which the departments of the College require gives to the advanced student a fair knowledge of the principles of job work.

*Telegraphy*.—The course of training involves for beginners the characters that compose the alphabet, and combinations of these characters into words and sentences,—attention being paid to spelling and to short and precise expression in messages,—abbreviations, signals, forms of messages, train orders, reports, etc. To the more advanced is given regular line business,—as press reports, messages, cypher messages, and orders in all forms used by prominent telegraph companies, together with the necessary book-keeping, upon exact copies of blanks in actual use, thus giving the student an understanding of the work of an operator. A portion of the line is devoted to instruction in the use and management of lines, batteries, instruments, etc. The elementary principles, of electricity, magnetism and electro-magnetism involved in telegraphy are taught and illustrated by experiments. The more recent inventions relating to the art are discussed and explained. Pope's Handbook of Telegraphy is used as a text-book.

*Instrumental Music*.—Provision is made for the teaching of music upon instruments of all sorts. A full course upon the organ or piano extends over four years, including harmony and composition; but the students may take lessons for a single term if they choose. The College furnishes the instruments for daily practice, but the instruction is paid for at the usual rates, as given under "Expenses." Music may be the industrial for young women, unless some other is required in the course. Young men may take music in addition to their course, if able to keep up standing in classes.

### MANHATTAN CARDS.

**G** George Firestone. Livery, Feed and Sale stable. East end of Poyntz Avenue.

**B** Burgoyne's. Photograph Gallery. Established, 1859. Opposite Purcell's Bank.

**C** Clothier. Wm. Knostman, Ready-made Clothing, Hats, Caps, and Gents Furnishing Goods. Opposite postoffice.

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**H** Ben Bros. Opposite the Postoffice, keep a full line of Groceries, Flour, Fruits, Candies, Nuts, etc. Their goods are fresh and first-class, and prices are low and Goods delivered free in any part of the city and on College Hill. We invite all to call, and we will endeavor to give satisfaction.

ALLEN BROS.

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**B. Purcell,** Corner of Poyntz Avenue and Second St., has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, &c., &c. Goods delivered in all parts of the city, and at the College, free of charge.

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## Commencement Exercises.

### DEPARTMENT WORK.

Only those who have improved their opportunities to see what is on exhibition know what has been done in the several departments this year. We interviewed several members of the Faculty, not only to learn what they have been doing, but in some instances to find what they know. We invite the reader to go with us while we call upon these people:

President Fairchild kindly consented to give us the following information:-

"President, what can you say of the progress of the College during the year just closing?"

"The number of students has increased from 402 to 428; the graduating class numbers 21, against last year's 14.

"Improvements have been as follows:- President's house, \$4000; Experimental barn, \$4500; steam heating apparatus in Chemical Laboratory, \$1500; steam engine and heating apparatus in Mechanics' Hall, \$2000; improvements in Horticultural Hall, with enlargement of heating apparatus, \$1100; refurnishing of Chemical Laboratory, \$300; gas machine for College, \$400; asphalt walks, 5000 sq. feet, \$650; enlargement of armory drill room; planting of hundreds of ornamental trees and extension of drives, planting orchards of pears and stone fruits. Grading in front of College Hall, with addition of stone steps at this and other buildings; addition of 44 acres of farm land, \$4800."

"What benefits are to be derived from the series of farmers' institutes conducted by the College each year?"

"The farmers' institutes serve: 1st, to encourage interest in agricultural questions and improvements among farmers; 2d, to bring the Faculty and farmers into closer relations; 3d, to bring the opportunities at the College into notice among farmers; 4th, to suggest to the Faculty lines of experiment and study for enlargement of agriculture; 5th, to acquaint the teachers with the circumstances of students at home to better results with their instruction; 6th, to give the Professors opportunity for popular address and strength before the audiences."

"What have you to say for the required industrials, especially agriculture and horticulture? Is the idea of required work on the farm popular with educators in other agricultural colleges?"

"The required industrials serve these purposes, to greater or less extent, according to successful management of classes: 1st, to acquaint students with certain elementary principles and practices; 2d, to keep up familiarity with common every-day affairs; 3d, to familiarize students with the range of experiment and work of the College; 4th, to give confidence in matters of manual efficiency, and develop critical dispositions as to management of such affairs; 5th, to associate generally the ideas of common life with the study and growth of the course; 6th, to suggest improvements in practices of the community."

"The idea is generally favored by all the colleges which make agriculture and the mechanic arts specialties; others require certain amount of work for all in special industrial arts. Students who have been through such industrials, after mature judgment, are unanimously in favor of it."

In the farm office was Prof. Shelton looking over exchanges, writing up his experiments, drilling third-years, and making up Commencement programmes; but we interviewed him, adding one more trouble to his stock in hand:-

"Prof. Shelton, what are the principal improvements made upon the College Farm during the last year?"

"A new experimental barn (75 x 48 feet), with all modern improvements, including offices, silo and steam machinery for pumping, grinding, and cutting feed. Forty-four acres of valuable land have been added to the Farm by purchase; and this has been fenced and improved in various ways. All told, something like a mile and a half of superior stone wall and two miles of board and wire fences have been added to the fencing of the Farm during the year."

"What is the object in maintaining a farm in connection with the College?"

"To carry out the experimental work proper to an agricultural college; to illustrate, by daily practice, the principles of agriculture; to furnish regular and systematic labor to students of the College, and to some extent, for the profit, financially, of the College."

"In your attendance at farmers' institutes and other gatherings, you have met farmers from pretty much all parts of the State; what one thing in your judgment do farmers, as a class, need most?"

"Education, especially in matters pertaining to their own calling."

Prof. Popenoe was interviewed as follows:

"What are the most common injurious insects that infest orchards and forest trees? and how can their ravages be prevented?"

"Leaf feeders and borers. Where the leaf feeding caterpillars are large and conspicuous and the use of London purple not advisable, hand picking. Where there will be no danger in the use of London purple on account of children, animals or fruit, it is a remedy for most of the leaf feeders. Use in proportion given below, or, better, one lb. to one hundred gallons. For borers, dig them out, keep the trees healthy by proper cultivation, and avoid wounding the trunks by the whiffletree or by improper pruning. Poisons are of no use in fighting borers."

"How did the last winter effect the trees and vines on the grounds?"

"Disastrously in many cases. The roots were often dead, while the top, before leaving out, was apparently healthy. So with pears, some plums, peaches and cherries. Many grape vines, both in vineyard and nursery rows, were killed. So with some catalpas and other ornamental tree and shrubs."

"Do you think it entirely safe to sprinkle a mixture of water and London purple on cabbage, especially after the head begins to form?"

"No."

"Will a mixture of London purple and water kill potato bugs?"

"It will. Mix at the rate of a pound to two barrels of water, and apply by a sprinkler."

On visiting the Drawing Department we found the walls completely covered with drawings which were made by the several classes.

Prof. Walters was asked: "Have your classes been doing any special work—we mean the advanced classes?"

"A great deal of work was done under my supervision by students in the Engineering Department and the Departments of Geology and Anatomy."

"These drawings on exhibition, I suppose, were all made by students during the year?"

"About 600 drawings on exhibition. They are all drawings from the present school year. Most of them are regular class work. Some few are the work of special students in drawing. Among these, I will mention drawings by Miss Phoebe Haines, by the Misses Marlatt, by Fannie Dorman, the Misses Bayles, Misses Cowell, Harry Kinney, etc."

"Will you have an exhibit of students' work at Topeka, at the meeting of the National Teachers' Association?"

"I shall send there a selection of about 100 drawings, representing, in successive plates, the course in mechanical drawing given at the College. I intend to make a creditable show at Topeka."

Prof. Nihart was asked for information about the Library. "How many volumes are in the Library now?"

"There are 6100 with about 1700 pamphlets."

"What condition is the Library in?"

"It is in good condition. Especial pains have been taken during the year to rebind all books that were torn or mutilated in any way; six boxes of books and magazines have been sent to the State Printer for binding. The crowded condition of the Agricultural and Horticultural Departments of the Library make it necessary to find room elsewhere for some of the books of the alcove. There is shelf room in all the other Departments. The catalogue of subjects and authors is almost completed. Corrections will be made as mistakes are found, and additions as books are received. The convenience and help of the catalogue substantiate the wisdom of preparing it, notwithstanding the time and expense incurred."

"Do the students use the Library to any great extent?"

"The Library is used by nearly all of the students. The teachers are careful to inculcate a spirit of inquiry, and the Librarian is often kept busy assisting those who desire information. The catalogue is a great help and after a pupil learns how to refer to it, few questions are asked of those in charge."

All the best magazines of the country are in the Library for the use of students, and all may be drawn, except current numbers. The reading room, which is also under the supervision of Prof. Nihart, has on file, besides all the INDUSTRIALIST exchanges—something over 200—the great weeklies, such as Scientific American and Supplement, Harper's Weekly, The Nation, London Times, and well-known agricultural, horticultural, and chemical journals. Hardly an hour passes when some student is not scanning these papers; and sometimes the room is crowded with the young people who want to read the news from their "home county," or who are seeking information on topics of the day—very likely for argument in debate.

Secretary Graham furnished us with the following statistics concerning the work of the year just closed:

"The total enrollment, as shown by the catalogue of 1885-86, is 428, of whom 301 are young gentlemen and 127 ladies. Of this number, 378 come to us from 60 counties in Kansas and 50 from 18 other States.

"The total number of applicants for admission during the year was 453, of whom 25 were not admitted because of lack of preparation.

"The average age, by classes of all the students enrolled during the year is—for resident graduates, 22.39 years; fourth-year class, 21.19 years; third-year class, 19.68 years; second-year class, 18.57; first-year class, 18.48 years. The average age of the whole number admitted is 18.77 years.

"It is an interesting fact that 286 of this enrollment are the sons and daughters of stock-raisers; the remaining 142 are the sons and daughters of parents who follow thirty-three different vocations. These figures ought to convince the most skeptical that the farmers' school is patronized by farmers.

"For native States the students give thirty-two, including five foreign countries.

"During the year there have been admitted 223 new students, 92 of whom expressed an intention of taking the full course, 108 a part of the course, and 33 are undecided.

"The amounts of money paid to students for labor on the farms and in the orchards, gardens, shops and offices have been, by months, as follows: July \$343.50, August \$347.75, September \$281.35, October \$368.75, November \$454.55, December \$271.10, January \$351.60, February \$343.20, March \$293.20, April \$454.45.

"The total number of different students whose names appear on the monthly pay-rolls is 202, of whom 9 are ladies. The largest pay-roll, that for April, contains 96 names; the shortest, a partial month, for December, 82 names.

"The total endowment fund of the College is \$499,363.98, which is invested in securities—principally school bonds—bearing from 7 to 10 per cent interest per annum: the average rate of interest being a little over seven per cent. The income derived from this fund is used to meet current expenses exclusive of the repairs and erection of buildings, which is done by the State, as required by law."

At the Printing Department, Supt. Thompson had his hands full of work, as is usually the case at this time of year.

"Does this Department do all the printing for the College?"

"Yes; all the printing used by the College is done at this office."

"What is the line of work done during the year just closing?"

"We have printed for Prof. Failyer and Mr. Willard a text-book for use in their classes in analytical chemistry—a book of 100-odd pages; we have printed also the proceedings of the Society for the Promotion of Agricultural Science, a pamphlet of 59 pages; the annual catalogue of the College, 5000 copies; 5000 copies of the report of the Professor of Agriculture; 500 copies each of the constitution of the three College literary societies. These are but the principal jobs. There are a multitude of small jobs that have kept our job-press busy nearly all the time."

"How many have you had enrolled during the year? and do any of your class work at the business after leaving College?"

"Seventy students have been enrolled this year. Many from the printing class are following that line of work; and the number is increasing as facilities for teaching increase in the office. I take special pride in mentioning the work of Mr. Geo. C. Peck, of Topeka, Miss Mary Merrick, of Los Angeles, Cal., and Mr. Peter M. Kokanour, of Manhattan, who are respected by their employers because of their ability as well as skill. Several others in the class now will be equally successful."

We saw Mrs. Kedzie:—

"How many have you had in your classes in household economy, in dairying and in hygiene?"

"I have had in household economy 22 students; in dairying, 20; in hygiene, 8."

"This large class in cooking must prepare a great deal of food—how do you dispose of it?"

"On Monday the work is so arranged as to give the class the preparation of a dinner for eight, ten or twelve of the Faculty, for which the latter pay twenty cents each. The table and the serving of the dinner is put into the hands of two of the girls, who take entire charge, for the time being, of the soup, meats, vegetables and dessert. The next three days the hour is devoted entirely to cooking, the class being in committees of three each. One committee may make cake, another yeast, etc. On Thursday the bread committee stays until their bread comes out of the oven—usually from 3 to 4 o'clock—and they prepare a dinner for themselves, which is just as nicely done as is that for the teachers on Monday. Friday the amount of food which has been cooked is arranged in lunches, and with each is put a cup of hot coffee. Tickets have been sold beforehand, and the holder of one of these ten-cent tickets is entitled to one of the lunches. There are usually from 90 to 120 of these sold, and the students seem to enjoy having them. The proceeds nearly pay for the groceries consumed."

"You have attended one or two of the series of farmers' institutes. How do you like that work? Can a woman do good at such gatherings?"

"I enjoy the work because the people at large seem to enjoy hearing of my work and of my girls. Yes, a woman can do much good in such places. At one of the institutes I attended last winter, I really think the paper by one of the ladies of the city where it was held did more for the real good of the place than was done by any other three."

Mrs. Winchip answered our questions as follows:—

"Can you tell me how many have been enrolled in your class in sewing this year?"

"There were enrolled in the fall term 42; winter term, 46; spring term 70; total, 158."

"How many garments have been made?"

"Something over 650 articles, of which 150 are dresses, finished and worn by pupils in the Department. The young ladies have made all kinds of garments worn by themselves, doing both hand and machine work; they have done fancy work of various kinds, including fancy and plain knitting; and, in short, they learn to use their fingers in such a way as to make them useful women in their homes or wherever they may be found."

"Do you know whether or not any of your pupils follow the pursuit of dress-making after leaving College?"

"Many of the girls at once go home and carry the burden of the home sewing, cutting and fitting all the clothing worn; while a few have worked at dress-making proper, making their living by this means."

"Can an apt student, taking the industrial hour only, learn dress-making thoroughly in the College course of four years?"

"Yes, she can fit herself to be a first-class dress-maker, if she has the natural aptitude for the work, which is an absolute essential to success in any business."

Mr. Hawkes had a great deal to tell us about the Carpenter Shop:—

"Mr. Hawkes, when a student is enrolled in this industrial, what kind of work does he begin on?"

"All students, upon entering the Carpenter Shop, are given sawing and planing, to determine what amount of ingenuity or skill each may have, and each is given work in dressing out lumber for some specific purpose, to the end that each may fully understand the methods to be observed in getting material ready for all classes of work. Then work is given in making mortises, tenons, mites, dovetails, and all descriptions of cuts used by carpenters, cabinet makers or wagon makers, with such explanations of the connection of lines with work as will give a full understanding of all the operations."

"Have your young men made any salable articles this year?"

"Among the articles made by the Mechanical Department during the past year may be named: a bookcase for the President's office, \$125.00; bookcase for the horticultural office, \$40.00; two cases for the Sewing Department, \$20.00 each; three dozen each of drawing boards, T-squares and triangles for the Drawing Department; stands and racks for holding bottles and tubes, and other appliances for the Chemical Department; stands, microscope boxes and many other articles used in the Museum; tank for spraying fruit trees, and many other things for the Horticultural Department; furniture for the Printing Department; numerous articles for the Farm and other Departments. Beside these, students have made for their folks a hundred or more hat racks, match safes, towel racks, trinket boxes, and many other articles too numerous to mention. They have also made one or two extension tables, and many dining and study tables, wash stands, bedsteads, cupboards, wardrobes, flour chests, cake boards, rolling pins and everything that could be used while boarding themselves, which they could make and save buying. Some half dozen or more writing desks, three or four tool chests, worth from \$15.00 to \$50.00 each, from three to four dozen boxes for entomological collections, a large number of mouldings and rollers for maps, and many other supplies of more or less importance."

"Do not your classes do nearly all the work of repairing buildings and making cases, etc.?"

"All repairs of buildings, furniture, farm implements and other fixtures used in the several departments of the College are made by students, except such work as requires a tinner or a stone or brick mason. All small jobs of painting or finishing are done by students. Some buildings have been built by students, as the Greenhouse, engine house President's barn, tool house and a small experimental barn (now torn down) for Farm Department, and a store house for lumber."

"What line of work do you think of exhibiting at Topeka in July?"

"The exhibit at Topeka will be made up of the President's bookcase, bookcase and large case for entomological specimens from Horticultural Department, show cases for Sewing Department, set of planes and tool chest from the Shop, with selections from the list of articles named as made by students, with other selections from the Departments not contained in the above list."

Prof. Hofer had some things about music worth knowing:—

"Should music have a place in an agricultural college?"

"Certainly. Love for the beautiful is found everywhere, on the farm as well as in town, and where is there anything more beautiful than music? Were music more generally studied, it would be one of the strong ties which bind the child to its home. On the farm there should be amusements, for home should be more than four square walls; they pay a larger percentage in happiness and contentment than any other investment the farmer makes."

"What kind of music, vocal or instrumental?"

"Both if possible, but vocal at any rate. Everybody should learn to sing. Mothers should learn to sing not 'bye, O baby,' repeated hundreds of times without time or tune, but good, sensible songs. Sing with the children; they soon learn; the love of song will develop rapidly, and home will ring with melody."

"What instruments do you recommend?"

"The organ for the girls and such of the boys as may have talent and time for practice. The boys may also learn violin, flute, clarinet and cornet."

"You forget the piano?"

"No, I do not; although it is the king of instruments, it needs too much time and drill and great dexterity of fingers. For a person who has a great deal of hard work to do, he could not learn to play well or keep up his practice of several hours a day. Better play the organ well than the piano poorly."

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1. In dollars and cents. All testimony of statistics agrees in showing that educated laborers, of all ranks, have better work and better wages than the uneducated.

2. In influence and position. Careful estimates make it certain that the chances of promotion to places of trust and power among men are almost two hundred times as great to an educated man as to an uneducated.

3. In usefulness. The bulk of good work in the world,—discovery, invention, government, philanthropy and religion,—is brought about by those who learn to think by study.

4. In enjoyment. Our pleasures grow out of what

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### COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

College Lands and all business connected with their sale are in charge of the Land Agent.

Bills against the College should be presented monthly, and, when audited, are paid from the office of the Treasurer, in Manhattan.

All Payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka.

The INDUSTRIALIST may be addressed through Prof. E. M. Shelton, Managing Editor. Subscriptions are received by Supt. Geo. F. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Kellerman, chairman of the committee on Museums.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding places, etc.—may be obtained at the office of the President or by letter.

### Science and Productive Industry.

[Annual Address delivered at the Kansas State Agricultural College, June 8th, 1886, by Hon. T. Dwight Thacher, of Topeka.]

Twelve years ago, it was my good fortune to deliver the Annual Address at the Commencement of this College. The intervening period has been one of marked growth and gratifying progress in the history of the institution. The eminent gentleman who at time stood at the head of the College, and with considerable emphasis had recently directed its course in the line of its true and characteristic development, has since won enviable distinction in the halls of Congress as a conscientious and able legislator; while students from these halls may now be found occupying honorable and responsible trusts in our own and other States, or illustrating the virtues of citizenship in the manifold walks of private life. Under the sagacious and cultured leadership of the present head of the institution, the College has grown rapidly in public favor, has largely increased its clientele among the people, and ranks well with the other higher institutions of the State.

In the address alluded to, I spoke emphatically in favor of industrial education as an immediate and pressing want, as the coming line of movement in educational progress, and as the true function and field of effort of the Agricultural College. I closed with these words: "In my judgment, if I might venture upon a word of advice, the opportunity of this community lies in unitedly holding up the hands of the Regents and Faculty in making our State Agricultural College a true exponent of the grand and beneficent idea upon which it was founded. Certainly, no function can be more noble than that of standing at the head of the industrial interests of this magnificent young commonwealth, to enrich and energize them with the life-blood of scientific education. The reward of such work may not be found in polished orations or in learned tomes, but it will be found in productive fields, in busy factories, in clanking mills, and, more than all, in intelligent and well-paid workmen. The well-being of the people is the supreme law of the State; and it is no less the crowning achievement of any system of education."

If this was true of the Kansas of 1874, with its comparatively meager and limited development, how much more true is it of the magnificent and imperial Kansas of 1886! Happily, there is less occasion today to emphasize the need and value of industrial education than there was twelve years ago; and still less reason to discuss or urge the true field of the Agricultural College.

The relations of Science to Productive Industry is a theme which might well command the pen of a master, and fill the limits of a volume. It would be difficult to name a science which does not fit somewhere in the vast scheme of human effort in its struggle with the forces of nature.

It might be supposed at the first glance, that mathematics—that most imaginative of all the sciences, since it deals primarily with the ideal world, scorning the limitations and imperfections of fact—since its lines, angles, surfaces, etc., are super-sensuous, standing alone in the pure light of reason and incapable of being perfectly realized to the sense, I say it might be supposed that this science would have little if any relation to productive industry. But the truth is, there is not an industry known to men, from the building of a steamship to the digging of a ditch, that has not a direct relation to mathematical science.

Geography, too, the poor and despised science of geography, has a most vital bearing upon the various industries of the world. The configurations of the earth's surface determine the lines of intercommunication by sea and land, and

thus affect commerce. The deposits of coal, or the existence of water power, as well as the products of the soil, and the character of the people, determine manufacturing industries. The Isthmus of Suez was one of the great trade routes of antiquity by which the commerce of Asia and Africa was carried across from the Red Sea to the Mediterranean and thence distributed to the countries of Europe. This trade helped to build up Alexandria, Constantinople, Venice, Genoa, Pisa, Rome, and other ancient or mediæval cities. In the fifteenth century, the Portuguese discovered the Cape of Good Hope, and the ocean route around the Cape began at once to supersede the route by way of the Isthmus of Suez and the Mediterranean. The cities just alluded to declined—their commercial importance dwindled, and London became the great distributing point of the world's commerce. Finally, the great French engineer, Ferdinand de Lesseps, came along and built the Suez Canal, when suddenly the trade around the Cape began to fall off, and the commerce of Asia and Africa began once more to flow across the Isthmus into the Mediterranean, and thence into all the countries of southern Europe and up through the Black Sea into Russia. The day upon which the Suez Canal was opened witnessed the beginning of the downfall of England's commercial supremacy. Now, commerce is itself one of the greatest branches of productive industry, and anything which affects commerce affects the products which constitute it. The Suez Canal enables the cheap wheat of India to be delivered in London in competition with wheat from America, and straightway every bushel of wheat in Kansas feels the effect, and a great branch of productive industry in our country may finally be overthrown simply because the configuration of the earth is such as to allow a ship canal to be constructed across the Isthmus of Suez.

We might, in a similar manner, run through the whole gamut of the sciences, finding here, there and everywhere how they affect productive industry. But instead of so doing, let us for a moment scientifically explore productive industry itself. What is it? It is that contest of man with nature or natural forces, in which something is produced. For instance, a man wants to quarry some rock from a ledge. He has to contend first with the force of cohesion which holds the rock in mass, and next with the force of gravity which holds the rock in place. He overcomes the force of cohesion with his drill and some explosive, and the force of gravity by his own power or that of his team, aided by various appliances; and the product is the rock in form to be used for a building, a fence, or for whatever purpose he desires. A careful analysis will show that Productive Industry proceeds along two lines, and accomplishes its ends by two processes, viz., *changes in place* and *changes in form*. These two simple processes seem to bound the power man has over nature. We can overcome the force of gravity and change the relations of things in space, as when we put the various pieces of a wooden building together and construct that part of a house; or we can furnish the occasion for the forces of nature to work, as when we unite an oil and an alkali, changing the form of each into a new substance called soap. Here, however, the human agency goes no further than to change the positions of the two articles, placing them together, and nature doing the rest.

It is curious to run the eye over the domain of industry and behold how the work of man is limited to these two things, changes in place and changes in form. The farmer, for instance, plows his field. By means of his instrument he simply changes the position occupied by the soil of his field, pulverizing the particles or changing their place with reference to one another. He sows his seed, which is simply changing its place from the bin in his granary to the surface of the field. Again, with his harrow he changes the place of the particles of the field, and the grain is covered. Nature supplies the warmth, the moisture and the vegetative force, and lo! the springing grain, the ripened harvest, and the new product. Man's agency in this new product has been solely that of changing the place of things—nothing else.

But let us follow the field of grain a little further. Man again appears on the scene, and with his instruments changes the place of the ripened grain, cutting it down, separating it from the soil, putting it in bundles, and then into the stack or barn. Again, with another instrument he separates the seed from the chaff and the straw, putting the one in the stack and the other in the bin. The seed started from the bin and the grain has been returned to it. The round is complete, but man's agency has still been nothing but the simple one of changing the places of things.

Let us go on. With his team and wagon the farmer again changes the place of his wheat from the bin in his granary to the bin of the grain-dealer or elevator company in the neighboring towns. Here he probably sells it and puts the proceeds in his pocket; but the process by no means stops here. The wheat is not wanted in the elevator any more than it was in the farmer's bin, but it is wanted at some great milling center, like Minneapolis or St. Louis. The grain-dealer, therefore, through his agent or employe, the railroad company, again changes the place of the wheat, and it brings up in the bin of the miller. The miller, now, through his machinery, changes the form of the wheat, and it reappears in the shape of new products, flour and bran. This process, however, has been purely a mechanical one—a dislocation and separation of particles—a change of place resulting in a change of form.

But the flour and bran are not wanted in the mill. They are wanted in some other place. Again the railroad company, as the employe of the miller or of some flour or feed-dealer, changes the place of the product from the mill at the manufacturing center to the store in some local distributing city or village, where the flour is sold to consumers for making bread, and the bran, perhaps, goes back as feed for his cows to the very farmer who raised the wheat.

So we might trace other products from the field, the forest, the mine, the sea—through all their translocations and transformations, to their final consumption or use; and in them all we should find these same processes of change of place and form—sometimes purely positional and mechanical, and at others in connection with the vital and chemical forces of nature—bounding, limiting and constituting Productive Industry.

We might even follow this interesting analysis into the domain of fine art. For, how does the painter produce his picture? Is it not by the purely mechanical process of changing the place of his paints from the palette and brush to the canvas? Or the sculptor his statue? Is it not by chipping off here and there a bit of marble? Or the musician his music? Is it not that by various devices and instruments, the human voice, the violin, the piano, organ, or what not, he puts in motion, or changes the place of, the air, and thus produces music? It is true that these producers of pictures, statues and music, work not blindly and at haphazard, but after inner ideals; but so, also, in a greater or less degree, do all workers. The farmer sows his field after some existing scheme; the carpenter builds his house after a plan; the quarryman strikes his blow at a definite point. The machine and the brute work blindly; man works according to the direction of mind.

# THE INDUSTRIALIST.

SATURDAY, JUNE 26, 1886.

EDITED BY THE FACULTY.  
E. M. SHELTON, MANAGING EDITOR.

We thus find man in this world, himself a part of nature, yet by virtue of his mind above nature, and engaged in a perpetual conflict with nature. His constant endeavor is to implant utilities in material objects; to put the forces of nature at work in his behalf, and to direct or overcome them at his will. Thus he furnishes the occasions for vegetative life in the growth of plants, and for animal life in the growth of flocks and herds; for the utilization of chemical forces in the various branches of manufactures; in short, for a use of all the forces with which we are acquainted in nature, to secure some coveted end. This creation of utilities in material objects is Productive Industry. In its interest the whole realm of nature is laid under tribute; Its processes are multi-form and innumerable, affording at a million different points an occasion for scientific knowledge to intervene in man's behalf. The natural sciences are themselves the product of the human mind in its efforts to fathom and comprehend the divine ideas as expressed in the forces of nature. The scientist approaches natural forces from the side of idea; the industrial worker approaches them from that of utility. Every advance in scientific knowledge casts a beacon-light upon the toil of the workman. It illuminates his path. Every tool, instrument, machine and device, by which productive industry attains its ends, involves scientific principles. Look at the immense, the immeasurable advance in the equipments of agricultural industry within the memory of men now living. Doubtless many of my hearers can remember the day when the sickle, the hand-rake and the flail were in almost universal use. What an immense stride to the reaper, the mower, the header, the separator! How could the vast operations of modern farming be carried on with the tools of our fathers? Eli Whitney's cotton gin has cheapened the cost of the world's clothing. The utilization of steam as a motor power has completely changed the face of modern industry, and is a most important factor in modern civilization.

Every new discovery in science means a contribution to man's power in changing the places and forms of material objects, an augmentation of his resources in the perpetual conflict with natural forces, and the multiplication of utilities to satisfy his ever-increasing desires. The chemist who keeps his daily and nightly vigils with his retorts and his blowpipes; the mathematician with his lines and angles, his surfaces and solids, his ideal circumference which no artist can draw, and his point which has neither length, breadth nor thickness, but position only; the astronomer among the majestic and ineffable glories of the midnight heavens; the geologist delving into the bowels of the earth until he nears the primeval fires; the electrician who startles us with some new discovery of the marvelous powers of that eluding and mysterious force which has given us the telegraph and the telephone;—these, and the thousand other workers in the vast domain of science, what are they but contributors to and co-laborers in man's increasing victory over the forces of nature? Without science, man as a worker must have remained forever in a savage state, but little removed from the achievements of the beaver and the elephant.

In this view we may see how utterly illogical and absurd and densely ignorant is the prejudices which we often hear expressed against machinery! No more melancholy fact exists in the history of the race than the opposition encountered by every invention calculated to increase the resources of productive industry. I remember hearing men in western New York declaim against the building of the New York & Erie Railroad, because it would diminish the use of horses. When power-looms were first introduced, they were broken in pieces by mobs. It is but yesterday, almost, that we used to read of farm laborers burning reapers and mowers in

some of the Western States. And it is not rare to hear the expression of opinion even by intelligent people, that machinery has not been a blessing to laboring men. Nothing could be further from or more directly opposed to the truth. As we have just seen, the essence of productive industry is the creation of utilities in material objects through the use or the overcoming of the powers of nature. We have seen that this takes place mainly through changes in place and changes in form. Whatever assists in this contributes to productive industry, increases it, multiplies its rewards, and augments the total stock of desirable things in the world. If some invention should enable wheat to be produced as cheaply as corn, would it not benefit the laboring man? Certainly; he could buy his bread with half the money he now gives for it, and have the other half left to buy something else with. Abundance is better than scarcity—abundant food than scarce food, abundant clothing than scarce clothing. Whatever contributes to abundance is, therefore, a good and not an evil.

Nor must we accept it as an unquestioned fact that machinery decreases the total amount of labor employed. It displaces labor, oftentimes but at the same time it increases labor. The reaper and mower may decrease the number of men employed during haying and harvesting in the fields, but they increase the number employed the year round in the factory, the machine shop, the iron mills, the mine and railway. Machinery, too, often becomes the occasion for a vast increase in labor. For instance, the railroad is a machine employed in the direct line of productive industry, namely, in moving things. Now, the population of Kansas is a million and a quarter. If there were no railroads, we could not support, and should not probably have, to exceed a quarter of a million. The labor of a million people is therefore rendered possible by this machine.

The sewing machine, whose invention was supposed to bring increased woes to the sewing women, has had no such effect. On the contrary, it has so stimulated the clothing trade as to occasion a vast increase in the total amount of labor used.

Some machines enable a great amount of production to go on, while they perform it no cheaper than the same work could be done by hand, were it practicable so to do it. A friend told me of seeing, in some Eastern city, a brick yard where a new and improved brick machine was turning out an enormous quantity of bricks per day. Right alongside of it was an old-fashioned brick yard, where all the bricks were moulded by hand, and it was moving along prosperously, able to sell its product profitably by the side of its more ambitious neighbor.

Some machines create absolutely new branches of industry and thus afford new fields of labor. Witness the great numbers of people employed in and about photography, the telegraph and the telephone.

It is a great fallacy to suppose that, if machinery were abolished, hand labor would step in and do the same work. The most of the work would not be done at all. Production would to that extent cease altogether. If the steam printing-press were abolished, we should not get our morning papers run off by hand: we should not get our present morning papers at all. If the reaper and mower were abolished, the cradle and the scythe would not fill their places: the product would be reduced. If the railroads were obliterated, horses and wagons would not come in to take our surplus products to the seaboard: the surplus products would largely cease to be created. So if all machinery were abolished, the paradise of labor would by no means be inaugurated. The race would retrograde into savagery, and the surplus population beyond what the arts of savagery could supply, would speedily perish from off the face of the earth.

In the light of this discussion we may see, too, something of the relation to Productive Industry held by both labor and capital. What is capital? Broadly speaking, it is that portion of the product of Productive Industry which has survived consumption or destruction. In the widest sense it is *all* that remains to the race of the multitudinous generations which have gone before us—our

inheritance of the ages; the manners, customs, habits, traits mental and physical, which have come down to us from our ancestors; the houses, farms, roads, bridges, fences, ships, food, raiment, machinery, tools, implements, *everything* which the productive industry of the past has created or modified, and which the abstinence of the race has saved from consumption or the tooth of time has spared from universal decay. This vast array is sometimes called *wealth*. It is often loosely spoken of as the fruit of past labor, but the expression is incorrect. Capital is the product, not of previous labor alone, but of previous productive industry. Productive Industry goes upon two legs, one of which is labor and the other capital, and not a single step can it take without the presence of both. There is not a dollar's worth of capital in the world today which was created by labor alone; not a dollar's worth into the creation of which previous capital did not enter. Before labor can strike a single blow it must have *something* to strike with; it must have tools, it must have food, clothing, shelter, and all these must not only have been produced by previous productive industry, into which capital entered, but also must have been *saved* by somebody who exercised prudence and abstinence. Every tool in the world was in part made by some previous tool; every machine by some previous machine; every article of clothing by some previous article. If we would go back to the time when labor *alone* began to create wealth, we must push our adventurous bark back across the sea of recorded history into the dim and unexplored depths of prehistoric eras, to the time when man first discovered the use of fire; back of that to when he first began to clothe himself in the skins of wild animals captured in the chase; back of that to the first rude savage who pounded one stone with another and thus made the first tool. In the vast journey from that day to this, at whatever point we stop we find Productive Industry, standing upon its two legs of labor and capital, already organized and at work. We know absolutely nothing of any condition of society in which labor wrestles naked and alone with the forces of nature. Were it possible, at one fell swoop, to destroy all the capital in existence and put the race as it now exists, even with its accumulated stores of knowledge and habits of industry, naked, unclothed, unhoused, unprotected, face to face with the forces of nature, with labor alone to depend upon, and what would be the result? Simply the almost instant and total annihilation of nine tenths of the human family. We hear and read a great deal of loose and foolish talk in these days about tearing down and building up again, about abolishing the present industrial order and starting anew. Let us not deceive ourselves. Whenever such a catastrophe shall occur, there will be nothing left to build upon. If capital shall disappear, society and civilization will go with it, and the only renewal possible will be to begin back at the Stone Age and slowly toil up through the long climb of thousands of years to our present position again.

Of all the achievements of civilization, there is none more remarkable than the creation of capital. It is in this form alone that productive industry perpetuates itself. It is by means of this that labor becomes efficient, and that man emancipates himself more and more from the bondage of nature. Look at the savage: the sun smites him by day and the moon by night; the rain beats upon him and the frost bites him; he can only move from place to place as his feet may carry him; his food is raw, precarious and innutritious. He walks upon the perpetual edge of starvation. He is less able to cope with nature than the beasts of the field. His first step out of this condition is to invent and make a tool. With this he obtains his first vantage-ground in the fight with nature. De Foe in his matchless work of fiction, Robinson Crusoe, was smart enough not to totally deprive his hero of tools.

The accumulation of capital implies not only the exercise of Productive Industry, without which it could not have had a being, but the possession of certain valuable personal characteristics in the producer, such as prudence, economy, abstinence. He who consumes all he produces leaves the world no richer

than he found it; indeed, on a large scale, poorer; for if the total of production were consumed, nothing would be left over for the productive industry that is to come after. Productive Industry absorbs both labor and capital, and somebody must save enough to replace the consumed capital, or production must soon cease. Machines, tools, factories, railroads, all the things that make up capital, are themselves subject to the universal law of decay, and must be perpetually renewed. Vast as are the accumulations of these things, they would disappear with marvelous rapidity were they not constantly replaced. It is estimated that the total food supply of the world is never more than two years ahead. In most countries, the failure of crops for a single year results in the exhaustion of the entire surplus. Productive Industry is, therefore, indebted to the man who *saves* for the fuel that feeds its fires. There must be saving, and saving on a large scale, or the fire in the furnace will go out and the wheels of industry cease to revolve.

In the light of this discussion, we may also see the relation which wages bears to Productive Industry. We have seen that Productive Industry goes on two legs—labor and capital. Wages is that portion of the product which labor receives. How much it shall be, in any case, depends upon a variety of considerations, such as the supply of labor and the demand for it, the total amount of wages-fund in existence, and the comparative amount of labor and of capital required for the particular product. The claim is sometimes wildly made, that the laborer is entitled to the whole product. This would be so if he furnished not only all the labor, but also the tools, machinery, buildings and raw material, in other words, the capital concerned in the product; that is, if he owned both legs he would be entitled to all the product. This is the case with the farmer who owns his farm and does his own work. He furnishes both labor and capital, and he justly receives the entire product. But the hired man on the farm, who furnishes none of these things save his labor, is entitled only to that part of the product represented by his wages; and he is entitled to just such an amount of wages as he voluntarily agrees to work for—no more and no less. But it may be replied that the farmer makes a profit upon this man's labor. It is to be hoped that he does, for he will be obliged to pay the man his wages whether he himself makes or loses. If the crop upon which the hired man has labored should entirely fail, he will claim his wages all the same. Should the farmer ask him to forego his wages because the crop has failed, he would properly reply: "I did not guarantee to you a crop from my labors; I agreed to give you so much labor for so much wages. I have given you the labor, and I am entitled to my wages. You took your chances upon the crop, and if it has failed, it is your loss, not mine."

This element of uncertainty enters into all the operations of productive industry, and while we say broadly that wages represents the part of the total product accruing to labor; yet, practically, the laborer does not take his wages in a portion of the product, but in money or capital on hand. The employer guarantees the laborer his hire, irrespective of the product or its value. If the venture fails, as in the case with the farmer's crop, the labor has still to be paid for. In critical and depressed times, when productive industry is declining, this process goes on until the capital is exhausted and the enterprise fails. The share of the products of industry, therefore, which accrues to capital must, in the long run, be sufficient to cover this element of uncertainty in results. The gains of good years must make up for the losses of poor years. The difference between a remuneration which is sure and one that is contingent, may be seen in the different rates of interest paid by the United States on its bonds and those paid by private parties on loans for business enterprises. The Government pays three per cent; the individual, who is supposed to be solvent, from ten to twelve per cent; and if the lender takes the risk of the result of the enterprise on his shoulders, he charges from fifteen to twenty-five per cent. In productive industry, where labor is paid for in the form of wages, capital assumes

(Concluded on fourth page.)

# THE INDUSTRIALIST.

SATURDAY, JUNE 26, 1886.

## CALENDAR.

1885-86.

FALL TERM.—Sept. 10th to Dec. 18th.  
WINTER TERM.—Jan. 5th to Mar. 26th.  
SPRING TERM.—Mar. 29th to June 9th.  
June 9th, Commencement.

Persons receiving the "Industrialist" need have no fear of bills to come; for the paper always stops with the expiration of subscriptions, unless continued by favor of a friend or of the College.

## BONDS WANTED.

School District bonds issued on College blanks will bring more than par value at once. Township and city bonds are also wanted. Address T. P. Moore, Holton, Jackson Co., the College Loan Commissioner.

## NOTICE TO BUILDERS.

Sealed proposals for refinishing Armory Hall—wood and iron work, plastering, and painting—will be received at the President's office up to noon of Tuesday July 6th. Plans and specifications may be seen at the above-named office after June 15th. The right to reject any or all bids is reserved.

Work on the new piggery is already under headway.

The next meeting of the Board of Regents will be on July 27th, at 3 P. M.

Prof. Olin is doing hard work as conductor of the Allen county institute.

Prof. Cowgill and family are visiting their Sterling friends for a week or two.

Some needed repairs have been made by man and carpenter in the Chemical Laboratory this week.

Secretary Graham and assistants are kept busy now-a-days mailing catalogues, recording inventories, etc.

Prof. Popeno has been encircling the trunks of all the apple trees with paper bands, for the purpose of entrapping the codling moth.

Since the frequent showers of the last ten days, the spots of dry grass have entirely disappeared from the lawn, and the flowers are looking the best.

This issue of the INDUSTRIALIST reaches the large number of ten thousand copies. These will be sent from the Secretary's office to all parts of the State.

We know those who receive this issue will be interested in reading the annual address, by T. Dwight Thacher, and we trust that the information they get of the College will be of benefit to them.

Following our usual practice, this number of the INDUSTRIALIST is the last one to be issued before the 21st of August or thereabouts. At that time we shall begin Vol. XII with an edition of ten thousand copies.

Whenever Mr. Lund is not piloting the engine that drives our press, he employs his time in putting in gas fixtures in the north wing of College Hall. After this, the whole building can be lighted with gas.

A Leavenworth Times correspondent, proposes to have Manhattan considered a summer resort, and the Agricultural College the attraction. This strikes us as a good idea. We don't know of a pleasanter place in Kansas than College Hill.

Mr. Davidson, Adjutant-General of the G. A. R. of Kansas, and General McDivitt, Commander of the same organization, and also editor of the Abilene Chronicle, were shown about the grounds and buildings on Thursday by our townsmen, Mr. Charles Waring.

Miss Anna Marshall, of Zeandale, Riley county, and Mr. Alfred Docking, of Clay Center, both of whom received their diplomas at the State Normal this year, were callers at the College this week. Miss Marshall was two years a student here, and she has many friends about the College who are always glad to greet her.

Prof. Walters has completed the plans and specifications for the Museum and Armory Hall. These departments are to be provided for by remodeling the building now known as Armory Hall. A glance at the plans shows that next year we shall have another building to rank in arrangement and beauty with the others on the grounds.

J. W. Van Deventer writes that the "class poet" is looked up to by hundreds of chickens on his brother's farm. This week he becomes one of the firm that publishes the Jewell County Monitor. We wish him success in his undertaking; and we know he will do well if he deserves to, as he is in a neighborhood where he is well known.

The Printing Department, Carpenter Shop, Sewing Department and Drawing Department will make exhibits at the National Educational Association, at Topeka, in July, of the line of work pursued by those departments. We shall not tell people what can be done in an industrial College, but we can show them what is being done here. The exhibit will be under the charge of Prof. Walters.

E. H. Perry, who isn't yet done admiring the sheepskin which he received on the 9th, and I. Day Gardiner, who framed his diploma two years ago, have united their fortunes and abilities on the Eskridge Star, and issued the first number under the firm name of Perry & Gardiner on Thursday of this week. We shall expect of these young men a good paper, for they are capable of making one; and we trust the people of Wabaunsee county will appreciate the merits of a good paper.

## Earnings.

The labor of the students in the industrial departments is principally a part of their education, and is not paid for unless the student is employed—outside of required hours of labor—upon work for the profit of the College. Students are so employed upon the farm, in the gardens or the shops, and about the buildings. The labor is paid for at rates, varying with service rendered, from eight to ten cents an hour. The Superintendents strive to adjust their work to the necessities of students, and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly pay-roll for the past year ranges from \$377 to \$456.

Many students obtain work in the city or upon neighboring farms, and so pay a part of their expenses. Students employed in the shops are allowed to work somewhat for their own profit, in the manufacture of articles for sale and use. In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide by earnings outside of term-time, or from other sources, for the larger part of their expenses. The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education if he has the ability to use his chances well.

## Required Industrials.

The need of general training of youth to some degree of dexterity in the every-day work of life, is recognized everywhere now-a-days. In this College, each young man spends time enough in the Carpenter Shop to learn how to use the common tools with ease, and do plain work with some idea of exactness. He also gives hours enough to farm and garden work to have clear notions of what they involve, and interest in the success or failure of varieties and methods. Each finds his critical spirit in such matters strengthened by test of his own abilities and judgment in everyday experience. These occupy one term of each year of the course prior to the fourth.

The young women find a similar provision for their familiarity with every-day affairs in the requirement of one hour a day for one term of the first year, in sewing adapted to their advancement, and in the practice in cooking and dairying required during two terms of the second year. Nimble fingers with the needle may not serve the same purposes as before the sewing-machine snatched the long seams out of the hands of the women; but the ready judgment and taste that make the beauty and comfort of dress are gained only by handling, with careful instruction, the tools that are employed about dress. In the same way, the tact of house-keeping comes by practice under tuition far more readily than under the sharp raps of chagrin and dyspepsia from sour bread, heavy cake and badly-cooked meats.

The required industrials of the course will have served their purpose well in such ways, even if they do not pave the way to skill in these universal arts.

## General Duties and Privileges.

General good conduct, such as becomes men and women anywhere, is expected of all. Every student is encouraged in the formation of sound character, by both precept and example, and expected, "upon honor," to maintain a good repute. Failure to do so is met with prompt dismissal. No other rules of personal conduct are announced.

Classes are in session every week-day except

Saturday, and no student may be absent without excuse. Students enrolled in any term cannot honorably leave College before the close of the term, unless excused beforehand by the Faculty. A full and permanent record of attendance, scholarship and deportment shows to each student his standing in the College. After each monthly examination, during the first year of attendance, a report of advancement is made to parents; and any student, upon leaving College at the close of a term, may receive a certificate of standing.

Chapel exercises occupy fifteen minutes before the meeting of the classes each morning, and unnecessary absence from them is noted in the grades.

Every Friday, at 1:30 P. M., the whole body of students gather for a lecture from some member of the Faculty, or for the rhetorical exercises of the third and fourth-year classes. On each Wednesday, at the fifth hour, all the classes meet for exercises in elocution and correct expression.

There are three prosperous literary societies, two of them of many years standing. All meet weekly in rooms set apart for their use. The Alpha Beta is open to both sexes, and holds its meetings Friday afternoons. The Webster and the Hamilton admit to members gentlemen only, and meet on Saturday evenings.

The Scientific Club, composed of members of the Faculty and students, meets in the Chemical Laboratory on the fourth Friday evening of each month.

Every Friday evening a students' prayer-meeting is held in a College Society Room, led by a member of the Faculty. On the Sabbath students are expected to attend services at least once in the different churches of the city.

Branches of the College Y. M. C. A. and Y. W. C. A. hold weekly meetings at the College.

Occasionally during each term the College Hall is open for a social gathering of Faculty and students, in which music, literary exercises and friendly greetings find place.

Public lectures by prominent men of the State are provided from time to time, as opportunity offers. All are free.

The Manhattan Horticultural Society meets monthly, and other farmers' associations occasionally, at the College, and the students have the privilege of attending these meetings.

## Industrial Arts.

The training in these departments is designed to be systematic and complete in each, so that the student, following a single line diligently through the four-years course, gains the essentials of a trade and a reasonable degree of skill. Those who wish only a general acquaintance with the arts can take shorter courses in several of them; but all are to select with a definite purpose. In the established course, young men are required to take the regular term in the carpenter shop and on the farm and gardens, whatever the industrial chosen; young women are required to give one term to sewing, one to practice in the kitchen laboratory, and one in the dairy.

*Agriculture and Horticulture* are required of young men as industrials during one term of the second year and one term of the third year. In these, practice is made to illustrate and emphasize the teaching, and covers essentially the same ground.

*Cooking*.—During the winter term, the young ladies who have lectures on Household Economy are required to cook one hour per day. They are taught various methods of making the substantial articles of food, as well as to spend some time on the dainty dishes.

During the term, they have practice in waiting on the table, in serving guests, and in arranging for evening companies; putting into immediate practice the lectures of each day.

*Dairying*.—During the spring term, daily instruction and practice in the different branches is given to ladies of the second year by the Instructor in Household Economy. Here the regular daily work is supplemented by a short course of lectures intended to explain the best practice in the arts of butter and cheese-making, and to give the reasons therefor.

The following topics cover, in the main, the instruction given in the class: Influences affecting the quality and quantity of milk; butter-making; the household and factory systems of cheese-making; creameries; "deep" and "shallow" setting systems; packing and preserving butter.

*Work in Wood and Iron*.—All students enrolled in classes for woodwork will be given lessons in sawing and planing to test their skill, and advanced as fast as their work will warrant.

Students who desire to learn the trade of carpentry will be given work in the direct line of that trade as far as possible. Work on roofing, framing, bridge work and stair-building will be done by models. Careful instructions will be given in sharpening, fitting up, and taking general care of all tools required in the work. Carpentry is required of young men during one term of the first year with especial reference to facility in use of common tools.

In iron work, instruction is given in ordinary work,—forging, filing, tempering, etc. *Sewing*.—Young ladies are taught in all ordinary forms of sewing with needle and machine, fitting and trimming dresses and other garments. A straight-line system of cutting and fitting is taught, and systems are furnished to students at wholesale rates. They may furnish materials, and work for their own advantage during the hour of practice, under the direction of the Superintendent. One term of sewing is required before the completion of the first year.

*Printing*.—Two courses are pursued in this art. In one the student is taught the implements or tools used in typography, and how to use them; composition; imposition; correcting proof; technical terms; presses and their workings; and the general duties of a first-class workman. Everyone is encouraged in the study of the rise and progress of printing and related arts. Habits of accuracy and thoroughness are required, in order to advancement. The second course of lessons, alternating with those in the first, embraces instruction in spelling, capitalization, syllabication, punctuation, proof-reading, preparation and criticism of essays, and such work as will make the student accurate and expert in language. Wilson's Punctuation is the text-book; but much of the instruction is oral,—such as grows out of every-day experience of the office.

Admirable drill is furnished by the INDUSTRIALIST to all, but especially to those who take the full course. The printing which the departments of the College require gives to the advanced student a fair knowledge of the principles of job work.

*Telegraphy*.—The course of training involves for beginners the characters that compose the alphabet, and combinations of these characters into words and sentences,—attention being paid to spelling and to short and precise expression in messages,—abbreviations, signals, forms of messages, train orders, reports, etc. To the more advanced is given regular line business,—as press reports, messages, cypher messages, and orders in all forms used by prominent telegraph companies, together with the necessary book-keeping, upon exact copies of blanks in actual use, thus giving the student an understanding of the work of an operator.

A portion of the line is devoted to instruction in the use and management of lines, batteries, instruments, etc. Elementary principles of electricity, magnetism and electro-magnetism involved in telegraphy are taught and illustrated by experiments.

The more recent inventions relating to the art are discussed and explained. Pope's Handbook of Telegraphy is used as a text-book.

*Instrumental Music*.—Provision is made for the teaching of music upon instruments of all sorts. A full course upon the organ or piano extends over four years, including harmony and composition; but the students may take lessons for a single term if they choose.

The College furnishes the instruments for daily practice, but the instruction is paid for at the usual rates, as given under "Expenses."

Music may be the industrial for young women, unless some other is required in the course.

Young men may take music in addition to their course, if able to keep up standing in classes.

## MANHATTAN CARDS.

**G** *George Firestone*.  
Livery, Feed and Sale stable. East end of Poyntz Avenue.

**B** *Burgoyne's*.  
Photograph Gallery. Established, 1859. Opposite Purcell's Bank.

**C** *Clothier*.  
Wm. Knostman. Ready-made Clothing, Hats, Caps, and Gents Furnishing Goods. Opposite postoffice.

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COLLEGE TEXT-BOOKS, School Stationery, Pencils, Ink, Scratch-books, etc., etc. Manhattan, Kansas.

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In basement, under Lemmon & Koller's. 12 shaves for \$1.00. None but the best workmen employed.

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**A** *Allen Bros.*  
Opposite the Postoffice, keep a full line of Groceries, Flour, Fruits, Candies, Nuts, etc. Their goods are fresh and first-class, and prices are low and Goods delivered free in any part of the city and on College Hill. We invite all to call, and we will endeavor to give satisfaction.

ALLEN BROS.

**M** *Manhattan Bank*.  
E. B. Purcell, banker. J. W. Webb, cashier. A general banking business transacted. Bills of Exchange issued on all principal cities and towns of Europe. All collections have personal, faithful and prompt attention of our attorneys. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

**B** *B. Purcell*,  
Corner of Poyntz Avenue and Second St., has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, &c., &c., &c. Goods delivered in all parts of the city, and at the College, free of charge.

## A DICTIONARY GIVEN AWAY.

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To the person sending us a subscription to the above-named Magazine for the year of 1886, at \$2.00, we will present a copy of

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(Concluded from second page.)  
all the risk, while labor receives a guarantee of its reward irrespective of the result. A due consideration of these facts would do much to remove the seeming inequality of the reward before these two great factors of production. The terrible uncertainty which hovers over business enterprises is shown in the well-known statistical fact that ninety-five per cent of them result in failure and financial ruin. The capacity—first to acquire capital, and second to handle it successfully in productive industry, especially on a large scale—is much rarer than people generally suppose. And yet the gift is of the most beneficent tendency, for in the long run the happiness of a people will be measured by the success of their industry. The true captains of industry, who can wield its forces with master hands, giving wide employment to labor and filling the world with wealth, are benefactors on a grand scale.

What, then, is the conclusion of science with reference to the assumed conflict between labor and capital? Evidently, so far as Productive Industry is concerned, there is no such conflict. Capital cannot take a single step in production without labor; nor, on the other hand, can labor take a single step without capital. Each is essential to the other. Productive Industry cannot move without the presence of both elements. Every useful product in existence—all the wealth of the world, is the result of these two factors. In regard to no one thing can labor say, "I alone made this," and no more can capital. The wealth of the world never would have been except for labor, and it never would have been except for capital. Capital is not the creation of labor, but of previous labor and capital combined in productive industry. Labor itself exists because previous labor and capital combined have rendered it possible that it should exist. The very personification of these two elements, as though they were separate and distinct, is fallacious and misleading. No such division in fact exists. Every laborer possesses some capital, and the great mass of the possessors of capital are themselves, in the truest sense of the word, laborers. The largest owners of capital in this country are the farmers, and they, almost without exception, are laborers. The wage-workers are but a fraction of the laboring population. There are thousands and tens of thousands of laborers all over the country who own their own capital, and are their own employers. There are other tens of thousands who work by the piece or the job. Including the farmers, a very large proportion of the capital of the country is in the possession of its laborers. Are all these men at enmity with themselves? They must be, if there be a conflict between labor and capital. That the man who has labor to sell and he who has capital to sell should each desire to get all he can for it, is natural. All trade and commerce is attended by this contest between buyer and seller. It is an old phase of human intercourse—as old as the race itself. This is not a conflict. It is but a fulfilling of the law of freedom in exchange. It is only when this great benevolent law of freedom is broken by one side or the other, and moral or physical force comes in to say, you shall sell or you shall not sell, that conflict begins. It is not then, however, a conflict between labor and capital, but between the law and those who would break it.

Is there, after all, any better law for productive industry than this great law of the freedom of exchange? Mankind has been working at this problem for thousands of years, and has not discovered any. The experience of men upon a subject which has been their daily thought for ages, is certainly worth something.

Take the prices of commodities, for instance, and can anybody devise a more practicable scheme of arriving at them than an open, free market, subject to the higgling of buyer and seller? What, after all, determines the value in exchange of any given article? Is it not what people are willing to give for it? There are just two elements in value, economically speaking, and they are, first, difficulty of attainment, and, secondly, the meeting of some human want or desire. A thing may be exceedingly useful in supplying some human want, indeed it may be indispensable, like the air we breathe, but if there be no diffi-

culty in attaining it, it will possess no exchangeable value. Nobody will give anything for it, because it may be had for nothing. On the other hand, a thing may be very difficult to obtain; it may have cost time, labor, money to produce it; but if nobody wants it, if nobody will give anything for it, of what exchangeable value is it? What would a steamship be worth in the midst of the desert of Sahara, a thousand miles from water? What would an ice-making machine be worth in Greenland? What exchangeable value would one of Murillo's paintings have among the Eskimos? How much would a Digger Indian give for Webster's unabridged dictionary? An artist may have spent years of labor upon a picture, so that it has cost him literally thousands of dollars, but when he puts it upon sale in some picture gallery it may not strike the fancy of the picture-buying public, and he must take what he can get for it. An inventor may spend great labor upon a machine, but if, when done, it fails to work, it possesses no exchangeable value. Two farmers may raise wheat of precisely the same quality, side by side. The cost of production in one case may have been fifty cents a bushel and in the other a dollar, but each will receive exactly the same price per bushel in the market. If the man who has the dollar wheat were to claim that he ought to receive twice as much as his neighbor because his wheat had cost twice as much to produce, he would simply be laughed at. Nobody would take the trouble to argue with him for a moment.

Now the first of these elements, namely, difficulty of attainment, represents the labor and capital expended in production, and is measured by what we call *supply*; the second element, namely, the meeting of some human want or desire, is measured by what we call *demand*. The ratio between demand and supply is measured by what we call *price*. Mathematically expressed,  $D : S = P$ . If we increase the demand, the supply remaining the same, the price increases. If we increase the supply, the demand remaining the same, the price decreases. If demand and supply both equally increase, the price remains unaltered. If simultaneously demand increases and supply decreases, then price rapidly increases. If simultaneously demand decreases and supply increases, then price rapidly decreases.

This law of supply and demand, which is only, in other words, the law of value in exchange, runs through all commerce, and obtains wherever there is a free market. It is to human industry what the law of gravitation is to the physical world. You may obstruct it, arrest it, modify it, resist it by opposing forces, but it remains inextinguishable; and the moment men freely act it resumes its universal sway. It has been denounced as selfish and unfeeling, but it is a question whether a law so directly growing out of the nature of things is other than wise and beneficent in the long run. Is it selfish for productive industry to accomplish its results in the most economical and direct manner? Is it selfish to use the power of a horse instead of that of a man to draw the plow? Is it selfish to produce the largest possible crops with the least expenditure of labor? Is it selfish to refuse to go a mile when you can attain your object by going half a mile? Is it selfish to overcome the forces of nature, and produce things in the most economical manner? Is labor in itself so desirable that we should expend more of it than is necessary to accomplish our ends? This is not selfishness; it is wisdom. Whatever increases the power of productive industry tends to create an abundance of the good things of life—food, shelter, clothing—everything that humanity desires—and this is a blessing. The private, selfish instinct is all on the other side; namely, that of scarcity.

The foregoing are, as I apprehend, some of the lights which science casts upon Productive Industry. In the first place, science holds a direct and intimate relation to all its processes; and in the second place, it analyzes productive industry itself, showing along what lines it must act, what limits bound its efforts, and upon what universal principles in human nature it rests. The theme, as I said in the beginning, is an important one, and volumes might be written upon it. I have only glanced at a few of the more important points. In this, the leading industrial institution in our State, I am sure such a subject must command wide and deepening attention. No State in the Union has had a more rapid growth in wealth, or has seen that wealth more equitably distributed, than Kansas. No State affords a better illustration of the growth of the masses of the people in comfort, happiness, intelligence, and physical and moral well-being, than Kansas. Less than a generation ago there was no productive industry in our State. Its fertile valleys and broad plains were in a condition of nature. Today the value of our farms and farm-products alone, to say nothing of our mines, our manufactures, our railroads, our banks and our merchants, is not less than five hundred millions of dollars. This vast sum of wealth has been created by a single generation of comparatively poor laboring men—and has remained, to a great extent, in their own hands. The settlers of Kansas, whether farmers, business men or professional men, have been mainly men of small means, who, by their own industry, economy and abstinence, have accumulated capital and added largely to the wealth of the country. We have no great cities with their perplexing and minatory extremes of pauperism on the one hand, and overgrown wealth on the other. Our population is mainly rural and village, and our business interests rest upon the safe and solid basis of our magnificent and fertile domain.

Our Agricultural College ought to feel proud of its position, standing as it were at the head of the industrial development of such a State; holding high the blazing torch of science to illuminate all the walks of labor and to glorify the every-day round of toil with the halo of the intellectual life. Its influence, in these days of wild and reckless and often unprincipled agitation, should be wide-spread, conservative, constructive, peaceful, ennobling, and, above all, law-abiding and patriotic. Its curriculum should be such as to throw light and give knowledge upon all the questions relating to the production and distribution of wealth; upon social questions such as pauperism, crime, taxation and government; and upon those deeper philosophical questions which color and direct the development of the entire moral and intellectual life. At no time in the world's history has it been more true than today, that knowledge is power. Nowhere is it a greater power than in the realm of industry. Evermore and increasingly is it true—"the tools to him who can use them." But along with this power to use the "tools" goes the moral responsibility to use them—not overbearingly and oppressively, but kindly, protecting, uplifting, for the best good of neighbor, friend and brother-man. The Spiritual realm outranks the realm of Force; and the Law of Love,—reaching to all created intelligences, lifting everywhere the heavy burdens from the weary shoulders of struggling men, and embracing a common humanity, both the weak and the strong,—is the supreme law of the Universe.

#### A Good Education Pays.

- In dollars and cents. All testimony of statistics agrees in showing that educated laborers, of all ranks, have better work and better wages than the uneducated.
- In influence and position. Careful estimates make it certain that the chances of promotion to places of trust and power among men are almost two hundred times as great to an educated man as to an uneducated.
- In usefulness. The bulk of good work in the world,—discovery, invention, government, philanthropy and religion,—is brought about by those who learn to think by study.
- In enjoyment. Our pleasures grow out of what we are ourselves more than from surroundings. A well-trained man sees, hears and handles a great deal more of the world than an untrained one. All things do him good, not so much because he owns them as because he understands them. He always has good things to think about.

#### Entering College.

Applicants for admission at the beginning of the year, in September, must be at least fourteen years of age, and able to pass a satisfactory examination in reading, writing, arithmetic including percentage and interest, geography and elements of English grammar. Those applying later in the term must

show sufficient advancement to enter the classes already in progress. Every effort should be made to begin with the first of the term, in order to advance with the class from the first.

Applicants of mature age who, for lack of advantages, are unable to pass the full examination may be received on special conditions. Applicants for advanced standing in the course must pass examination in all the previous studies of the class to be entered; but, if they have pursued such studies in other institutions of similar rank, they may receive credit for their standing in those institutions upon presenting a certificate from the proper officer, showing that their course has been equivalent to that given here.

#### Board and Rooms.

No provision for rooms and board is made at the College. The students all find homes in families or in family boarding-houses, at rates varying from \$3.00 to \$4.00 a week for board with furnished room. Lists of boarding-places, with prices and accommodations, can always be had at the President's office, and students are required to notify the President of their rooms when selected.

Lists of rooms for rent without board may also be had by those who wish to board themselves. Directions and advice are gladly given by any of the officers.

#### Expenses.

Tuition is free, and no general fee for incidental or contingent expenses is charged. In a few special departments of instruction, the following payments are made in advance to the Secretary:

In analytical chemistry, the students pay \$3 a term for the chemicals and apparatus used in their laboratory practice and analysis.

In the printing office, young men, in their first year, pay \$3 a term for office expenses. Advanced students have the use of the office for the work performed during the industrial hours.

In telegraphy young men pay \$3 a term for office expenses.

Young women are furnished both printing and telegraphy free of expense, these two offices, with the Sewing and Cooking Departments, being provided especially for their industrial training.

Lessons in instrumental music, two a week, are from \$10 to \$14 per term, according to its length; one a week, \$6 to \$8.40. One half is to be paid to the instructor in charge with the first lesson, the other half at the middle of the term.

The cost of text-books at the book-store is, for the first year about \$4 a term; for the second year, \$2.75; for the third year, \$7.50; and for the fourth year, \$5.50.

Board and washing are not furnished by the College. Board, with furnished room, can be procured in private families at from \$2.75 to \$4 per week. Some students board themselves at even less cost, and rooms for the purpose can be obtained at a rent of from \$1 to \$2.50 a month. Washing costs from \$0.50 to \$1 a dozen pieces.

Ordinary expenditures, aside from clothing and traveling expenses, range from \$100 to \$200 a year.

#### General Courses of Study.

Each student is expected to take three studies besides one hour's practice in an industrial art; and variation from this rule can be only with consent of the Faculty.

Parallel courses are offered to both sexes with such differences as their necessities seem to call for. The following gives the general scope of the two; but fuller explanations are found in the annual catalogue.

FIRST YEAR.	FALL TERM.	Arithmetic.
	WINTER TERM.	English Analysis. Geometrical Drawing.
	SPRING TERM.	Book-keeping, Drawing. English Structure. United States History.
SECOND YEAR.	FALL TERM.	Algebra. English Composition. Botany.
	WINTER TERM.	Algebra completed. Elementary Chemistry. Horticulture. 14 Lectures in Military Science.
	SPRING TERM.	Geometry. Practical Agriculture or Household Economy. Organic Chem. and Mineralogy. 12 Lectures in Military Science.
THIRD YEAR.	FALL TERM.	Geometry completed, 5 weeks. Drawing, weeks. Entomology. Analytical Chemistry.
	WINTER TERM.	Trigonometry and Surveying. Physiology. General History.
	SPRING TERM.	Mechanics. Agricultural Chemistry. Rhetoric.
FOURTH YEAR.	FALL TERM.	Civil Engineering. Drawing, (or Hygiene). Chemical Physics. English Literature.
	WINTER TERM.	Agriculture or Literature. Meteorology. Psychology.
	SPRING TERM.	Logic, Deductive and Inductive Zoology. Structural Botany.
		Geology. United States Constitution. Political Economy.

# THE INDUSTRIALIST.

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## KANSAS STATE AGRICULTURAL COLLEGE.

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### COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

College Lands and all business connected with their sale are in charge of the Land Agent.

Bills against the College should be presented monthly, and, when audited, are paid from the office of the Treasurer, in Manhattan.

All Payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka.

The INDUSTRIALIST may be addressed through Prof. E. M. Shelton, Managing Editor. Subscriptions are received by Supt. Geo. F. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Kellerman, chairman of the committee on Museums.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding places, etc.,—may be obtained at the office of the President or by letter.

### THE COLLEGE.

In February 1863, the State Legislature formally accepted the grant of land made by act of Congress approved July 2nd, 1862, and located the College thus provided for at Manhattan.

The College was opened, September 2nd, 1868, with fifty-two students during the first term, under the charge of Rev. Joseph Denison, President.

In 1873, a reorganization of the Board of Regents brought the election of Rev. Jno. A. Anderson to the Presidency and a decided movement toward a thorough industrial development of the College departments. A change of site brought the College into close proximity to the city, obviating the expense of large dormitories, and presenting every facility for experimental agriculture and horticulture. In 1879, upon the election of Mr. Anderson to Congress, Professor Geo. T. Fairchild of the Michigan Agricultural

occupy a beautiful site, overlooking the city of Manhattan, and yet surrounded on three sides by the higher bluffs of the Kansas and Blue rivers. They stand as indicated in the plat of the grounds shown on the fourth page, and may be briefly described as follows:

The College is in three distinct structures, connected by lower corridors, extending in length to 250 feet, and in depth to 130 feet. It contains in its basement and two stories above, beside extensive corridors, a chapel 52 by 68 feet, with a gallery,—seated for 550 students,—ten class-rooms not less than thirty-five feet square, library and society room of equal size, a drawing room with study and store-rooms additional, 35 by 50 feet, and reception-room, offices, studies and cloak-rooms, model kitchen, dining-room and pantry, store-rooms, fireproof vault, engine-room and dwelling for the engineer—in all sixty rooms. The attic is

Mechanics Hall, 39 by 103 feet, with engine-room attached, contains, in its two stories, the Carpenter Shop with benches for thirty-five students to work at once and shafting for lathes and other wood-working machinery driven by a twelve-horse-power Atlas engine, the Printing Office referred to under "Exhibit," the Telegraph Office with instruments for classes of fifteen, and five Music rooms with instruments. The Blacksmith Shop contains two forges, vices, etc., for classes of six students.

Armory Hall, 46 by 96 feet, two stories, has the whole lower floor given up to the Military Department for drill room, uniform and dressing rooms, and gun cases with arms and accoutrements for one hundred cadets. The upper floors are in process of completion for the Department of Natural History. The plans give a fine museum with skylights and two tiers of cases, a class room, study,



College was called to the Presidency.

The College has received from the State for all purposes, including expenses in management of lands and funds, not quite \$290,000, and from other sources for current expenses, not including a few special gifts of stock, apparatus, etc., a trifle over \$350,000 in the twenty-three years of its history.

The endowment now amounts to \$499,363.98, with 160 acres of land unsold. This is so invested as to secure an annual income of about \$35,000 so long as present rates of interest rule.

The property of the College, in buildings, grounds, apparatus, furniture, stock, library, etc., is worth now more than \$200,000, most of which has been acquired within the past ten years. The development of the grounds into a fair specimen of landscape gardening has been reached chiefly within the last five years.

The buildings, all of white limestone,

yet unfinished, but is roomy and well lighted for minor work-rooms.

The Chemical Laboratory, a most convenient building, is fully described elsewhere under "Chemical Department."

The Horticultural Laboratory, with greenhouse attached, has an excellent class-room, 30 by 35 feet, and a cabinet for specimens in illustration of horticulture and entomology (as large), with office and work-room convenient. Its ample cellar contains storage for fruit, scions, etc., besides tool-room and boiler-room. The greenhouse, of three large rooms and potting house, is fully stocked with an extensive collection of plants illustrative of botanical forms and peculiarities of vegetable growth. The grounds about are adorned with numerous flowering plants and ornamental shrubs and trees, while the contiguous orchards, vineyard and small-fruit gardens give abundant illustration in practical horticulture.

three laboratories and an extensive store room, all conveniently adjacent to the museum.

The Barn is of stone, 50 by 75 feet and 48 by 96 feet in form, with stable room under the whole, and an experimental piggery and cattle shed attached, 40 by 45 feet. It contains threshing and grinding machines run by steam power, silo, root-cellars, cooking rooms, granaries, tool rooms, with water tank and pipes for conveniently supplying both floors. The farm crops, pastures and meadow, with experimental plots, upon the farm of 250 acres, and the herds of cattle and swine of various kinds make the equipment of the department excellent for illustrating the lectures in agriculture.

The substantial stone dwellings upon the premises are occupied by the President and the Professor of Agriculture who is also Superintendent of the Farm.

# THE INDUSTRIALIST.

SATURDAY, JULY 10, 1886.

EDITED BY THE FACULTY.  
E. M. SHELTON, MANAGING EDITOR.

## THE COLLEGE EXHIBIT

At the National Educational Association.

No effort is made to show the general educational work of the College, even by examination papers, since such work, however excellent, is not distinctively different from similar work in other institutions. It seemed best to confine the exhibit to the lines of work peculiar to the course of training in a college of industries. The photographs of buildings and interiors show some of the distinctive features in classes at their peculiar work; other peculiarities may be judged from articles on exhibition.

### Department of Natural History.

This Department can with difficulty transport samples of work and apparatus, and therefore its exhibit has been confined to the microscopic outfit furnished each student, with samples of mounted objects, to botanical specimen-books, and to charts and preparations made by students in connection with class work. Samples of two patterns of compound microscope are shown: of these the department has sixteen; and each student of the senior class is furnished with one, together with tools, etc., with which he works two hours every day during one term. The work is devoted to vegetable histology, the student making his own preparations, recording observations and figuring specimens. A set of reagents, including iodine, glycerine, alcohol and potassic hydrate, is furnished each student, and he has access to other less common reagents as needed. A tray of tools, according to sample shown, is also at the disposal of each student. In it are found a razor for section-making, pincers, scalpels, crystals, pipettes, glass slides, covers, and all other pieces ordinarily furnished the beginner in such work. Permanent mounts, in trays shown, are required, however but few in number, from each student. The same microscopes, but with tools and reagents somewhat different, are furnished students who do special work in zoölogy and animal histology. Three dissecting microscopes, of the kind shown in sample, are made use of in both botanical and zoölogical work.

The botanical specimen-books show samples of work done by students of the first year in the course. The work of collecting and mounting specimens, however, forms a very inconsiderable part of the course—occupying but a part of the student's time near the latter part of the term.

The geological charts represent work done by fourth-year students at the end of a ten-weeks' course in geology. Such charts, one by each student according to his own design, are required of the class.

The zoölogical charts are made by special students in connection with work performed in the laboratory. Each subject that is studied is similarly illustrated.

Six anatomical preparations are shown, namely, of rabbit, striped gopher, spotted salamander, fish and mice. These specimens exhibit the several organs in the various animals in natural position, and are selected from special student work done in the laboratory.

### APPLIANCES.

This Department is furnished with seventeen compound microscopes of several patterns, namely, Bausch & Lomb's "Model," "Harvard" and "Physician's Microscope," Beck's and Harnack's. Each microscope is accompanied with a set of tools, in shallow wooden trays with the necessary partitions. These consist of a razor, dissecting needles, scalpels, forceps, watch crystals, glass slides, covers, etc. To this are added sets of the commonest reagents in light, portable cases. The dissecting microscopes are Bausch & Lomb's, and each is furnished with three lenses. Several cameras are used, the most important being Oberhäuser's. Of other minor pieces of apparatus may be mentioned bell-glasses, a self-centering turn-table and tools and reagents for mounting microscopic objects, plant screw-press and four wire presses, with a large quantity of dryers, two collecting boxes, etc.

For anatomical work there are dissecting boards for large specimens, and zinc trays for the smaller—the latter with wax-covered bottoms for dissection under water. The usual variety of dissecting scalpels, tenacula, blow-pipes, chains and hooks, scissors, bone-saw, syringe, etc., are found.

Also for geological work, hammers, chisels and picks.

asitic species of Kansas. For illustration in human anatomy there are a mounted skeleton and models of the eye, larynx and tongue and ear.

### Chemical Department.

The Department of Chemistry and Mineralogy occupies the whole of a commodious cruciform building, having over six thousand square feet of floor space besides the basement. It is divided into eight rooms. The lecture room contains seats for ninety students. The two qualitative laboratories are side by side, occupying one wing of the building, and are connected by doors. They afford work-tables and lockers for eighty students. The quantitative laboratory can accommodate sixteen students. The Professor's office and study opens into the lecture-room on one side and into the private laboratory on the other. The balance-room is connected with the private laboratory and convenient to the students' qualitative laboratory. All of these rooms are arranged about a central room and open into it. This room contains the collections of minerals and ores and the cases for apparatus. The basement under the qualitative laboratory is divided into a store-room for chemicals, an assay room and a room for the gas machine, boiler, coal, etc. The entire building is supplied with rain water stored in a tank in the building and in a cistern. Gas for heating is supplied at

general chemistry by their own experimentation, to obtain familiarity with the common and important minerals by a course in blowpipe analysis, and by a term's work in qualitative analysis to become acquainted with the substances met in every-day life and with the reactions of inorganic chemistry. Special courses may be taken in the various branches of quantitative analysis, both organic and inorganic, including assaying; also in qualitative organic analysis and pharmacy.

### The Printing Department.

The exhibit of the Printing Department consists of a miscellaneous assortment of pieces. In the book of specimens are hundreds of different jobs, some of which would not be pronounced first-class by any job printer: but the attempt is not to show the best work that the best students could do, but, rather, to show a line of all the work done by all the students in the Department. There is no attempt at any classification worth speaking of; the meritorious jobs appear on the same page with those having less creditable appearance.

If the object of this exhibit were to show what *can* be done in the Department, only the first-class jobs would be presented; but the object, instead, is to show what *is* done, and what has been done during the past eight or ten years. It will be noticed, if dates of the various samples are observed, that many pieces of work were done when the College was not so well equipped as now in any of the departments; when it did not rank as high as a college as it does now. And, then, if dates are followed up year after year, a person, even though he may have lived almost within the shadow of the buildings, will observe the marvelous growth of the College. In these samples we have a history. In the INDUSTRIALIST, a bound copy of which accompanies this exhibit, we have a complete history—a detailed account, given weekly since the paper was established in 1875. Isn't it true that printing is the "art preservative of all arts"?

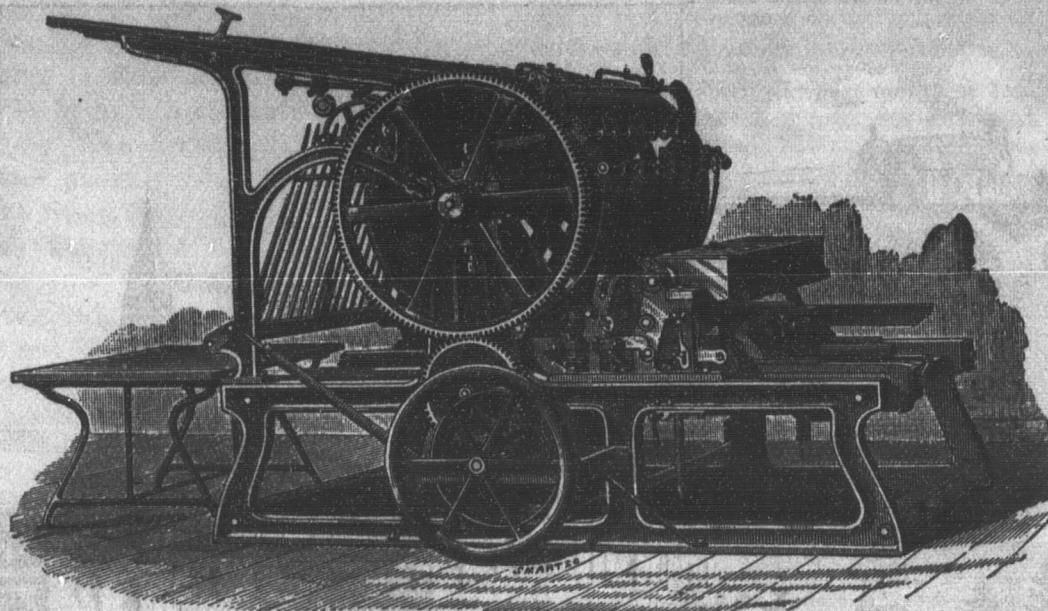
Very few of the samples were printed merely for show: they were, as will easily be seen, printed for some use. The printing required in the several departments of the College generally amounts to more than can be done during the "industrial hour." What is not done during the hour is done by students outside of class hours.

The press work of this Department is worked upon an Old Style Gordon and a Babcock cylinder. A cut of the latter is given with this article. The books and pamphlets in this exhibit were printed upon this large press, except a few which were printed on a Gordon jobber before the cylinder press was purchased.

### Department of Industrial Art.

This Department exhibits about two hundred drawings, mostly regular class-work of the past year. They are arranged on the walls so as to indicate the methods followed in teaching and the progress of the pupils.

About one-fifth part of the time allotted to this study in our course is given to freehand drawing, two-fifths to geometrical constructions, one-fifth to orthographical and isometrical projection and one-fifth to perspective, shades and shadows. All instruction is based upon mathematical demonstration. The plates are drawn at home, the recitation hour being almost wholly given to blackboard demonstration, criticism and lectures. Both sexes take the same course.



The extensive geological collections were made largely by Professor Mudge, and since added to by numerous specimens from various parts of the State. They illustrate the whole field of paleontology, but are particularly rich in the magnificent Dakota leaves. The carboniferous fossils are also abundant and important. The zoölogical specimens consist of nearly one hundred stuffed birds and as many skins; a few mounted mammals; a large collection of reptiles well representing the herpetological fauna of the State; fishes in alcohol, including those of this State and many others, mostly presented by the eminent ichthyologist, President D. S. Jordan; alcoholic mollusks, echinodermata, worms, sponges and others, presented by the Smithsonian Institution; fresh-water shells, marine shells, corals, etc.; osteological specimens prepared by the department, also many alcoholic anatomical preparations; skeletons of hog (Lord Liverpool) and cow (Grace Young 5th); donations of the Scientific Club, consisting mainly of fossil elephant's tusk and teeth, stone implements, pottery and ornaments, Riley county fossils, Dakota fossils, minerals, marbles and nests with eggs. The botanical collections—about three thousand specimens—consist of flowering plants containing very largely, but not exclusively, western forms, a few ferns and mosses, and many fungi, mostly par-

every table, and wherever desirable there are burners for lighting the room. The lecture-room and all the analytical rooms are provided with draught-hoods for conveying away noxious or disagreeable vapors. In addition, thorough ventilation of the qualitative laboratory is secured by a convenient arrangement of skylights.

The Department possesses the best equipment of chemical apparatus in the State. Two analytical balances, a gas combustion furnace, an assay furnace, a spectroscope, a Soleil-Scheibler saccharimeter and Frankland's apparatus for gas analysis might be mentioned especially. During the past year there have also been added a large steam drying closet with eighteen independent compartments, a "water bath" for evaporation and hot filtration, a block tin condenser and block tin lined tank for taking distilled water from the steam pipes, a small steam drying oven in the private laboratory and steam-coils for sand baths in the draught-hoods of the quantitative and the private laboratories.

The Department possesses the mineralogical collection of Prof. Mudge, to which additions have been made from time to time; also a collection of over two hundred specimens of ores from the mines of Colorado and New Mexico.

These facilities enable students in the regular course to fix their knowledge of

The freehand drawings exhibited are, for obvious reasons, mostly copies from different text-book series. They should not mislead to the belief that we favor this method of studying art. Every other day is given to drawing from the object. The students are led to recognize the facts, relations and principles involved in the apparent form of the object, to note the distribution of light, shade, shadows and reflection on the same, and deduce the general principles which the observation and comparison of these appearances are found to establish. But such drawings generally lack the finish that a copy has.

The architectural drawings are mostly the work of special students. The maps and engineering plates were drawn under the supervision of the teacher of the Drawing Department, but give the result of surveys and research made by the classes in higher mathematics.

#### Carpentry.

The work of the Carpenter Shop has been so miscellaneous as to preclude a complete exhibit. The work of beginners is shown to a very limited extent in simple sawing, planing and joint-making. Samples of dovetailing and compound tenoning illustrate more advanced work, while the finished tools, chest, show cases and furniture show work of students advanced in the course who have given extra effort for skill. The models of church, roof and bridge frames are given as examples of higher practice work, though the bulk of training in higher classes is turned to account upon matters of personal interest to the student. Multitudes of articles of furniture and tools and apparatus are each year made by students for themselves or their friends with the best of results in attaining skill through interest. Such samples of work are scattered over the State.

#### Household Economy.

The instruction in Household Economy includes a twelve-weeks' course of daily lectures with an hour additional of practice in all kinds of plain cooking as well as the preparation of fancy dishes, cake making and pastry, and setting and waiting upon tables. The model kitchen, shown by photograph, is well equipped with various conveniences for best work.

A term's practice in dairying, especially butter-making, as suited to domestic affairs generally, is accompanied with occasional lectures explaining the processes, and comparing with other methods in vogue. Various methods of treating milk in deep and shallow setting are described and illustrated.

#### Entomology.

The work shown here is chiefly that of advanced students, with samples only of the ordinary elementary collections which each of the eighty students in the class of the past year has been required to make. Such work has been chosen as shows the exact knowledge sought in the pursuit of economic entomology, itself instructive in both facts and methods of presenting facts.

The feeding cases are added, as showing the work afforded to advanced special students in watching the development of insects in various stages. The extensive collections of the College are used by the students for comparison only. All the cases shown are work of students in the Mechanical Department.

#### Engineering Department.

The exhibit of the Engineering Department consists of maps of the College

Farm and grounds, drawn by members of the surveying class from surveys made by the class; and of engineering drawings illustrating theses prepared and read by members of the class in civil engineering. Most of these drawings represent structures and methods with which engineers have long been familiar; some, however, represent processes just now being used for the first time; while still another presents an original method proposed by its author for overcoming the hitherto insurmountable difficulty in obtaining satisfactory foundations for heavy structures in the city of Chicago.

#### Sewing.

The samples of work shown are such as have been made during the past six months in the regular practice hours of the classes. They include plain and ornamental needlework, machine work and hand-work, lace-work, fancy knitting, piecing and patchwork. Dress-fitting and making has been a prominent part of the work, more than 150 dresses having been made during the past year in the sewing rooms. Garments of all kinds have been made to the number of 650, very few samples of which can be shown because they were made for immediate use. The young ladies of the graduating class made their own dresses for the occasion.

#### General Course.

The four years' course is seen to be a thoroughly scientific one, with excellent training in English, all other language studies being left to other schools and courses. The College thus occupies a distinct place in the educational forces of the State, having a character of its own. The results are shown elsewhere in statistics of attendance and growth, placing this high among the colleges founded by the land grant of 1862, as reaching the classes for whom the endowment was especially designed.

#### Labor and Earnings.

Every encouragement is given to habits of daily manual labor during the College course. Only one hour of daily practice in the industrial departments is required; but students are encouraged to make use of other opportunities for adding to their ability and means.

All labor at the College is under the direction of the Superintendents of the departments, and offers opportunity for increasing skill and efficiency. In regular weekly statements, the students are required to observe business forms and principles, showing from their daily account when and where the work was performed.

The shops and offices are open afternoons and Saturdays for the accommodation of skilled students in work for their own advantage. Everywhere the student who works wins respect; and it is a matter of pride to earn one's way as far as possible.

The labor of the students in the industrial departments is principally a part of their education, and is not paid for unless the student is employed—outside of required hours of labor—upon work for the profit of the College. Students are so employed upon the farm, in the gardens or the shops, and about the buildings. The labor is paid for at rates, varying with service rendered, from eight to ten cents an hour. The Superintendents strive to adjust their work to the necessities of students, and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly pay-roll for the past year ranges from \$377 to \$456.

Many students obtain work in the city or upon neighboring farms, and so pay a part of their expenses. Students employed in the shops are allowed to work somewhat for their own profit, in the manufacture of articles for sale and use. In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide by earnings outside of term-time, or from other sources, for the larger part of their expenses. The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education if he has the ability to use his chances well.

## THE INDUSTRIALIST.

SATURDAY, JULY 10, 1886.

#### CALENDAR.

1886-87.

FALL TERM.—Sept. 9th to Dec. 17th.  
WINTER TERM.—Jan. 4th to March 25th.  
SPRING TERM.—Mar. 28th to June 8th.  
June 8th, Commencement.

#### BONDS WANTED.

School District bonds issued on College blanks will bring more than par value at once. Township and city bonds are also wanted. Address T. P. Moore, Holton, Jackson Co., the College Loan Commissioner.

Prof. Shelton's Reports of Experiments, 1885, is ready for distribution.

The College sends greeting to all friends of education, saying, "Come and see."

Most of the Faculty not out of the State will look in upon the National Association.

Mrs. Winchip, with the aid of Mrs. Kedzie, will arrange the display of the Sewing Department.

The finest field of oats seen in many States has been harvested this week upon the College Farm.

Supt. Thompson and family are spending a short vacation in California, where his father has lived for several years.

Many students will enjoy for a day or more the rare opportunity given by the meeting of the National Association.

Profs. Walters and Graham will arrange the exhibit of the College at the National Association this week and next.

This issue of the INDUSTRIALIST is set, made up and printed by students, without even the presence of the Superintendent.

Prof. Olin has spent the past month at Iola as Conductor of the Institute, and will spend the next at Troy in the same good work. The N. E. A. meeting will claim him for next week.

Prof. Shelton is expected home by the first of next week. He was elected President of the Association of Teachers of Agriculture and Horticulture at the meeting last week at Lafayette, Ind.

The College grounds are in the height of their beauty. It is hoped that some of the friends from other States, attendant upon the Association, may find it possible to visit us during their stay in the State.

Prof. Popeno's exhibit of work of insects prepared by the aid of Mr. C. L. Marlatt, post-graduate student, is especially interesting and instructive. It will form a part of the permanent museum in entomology.

An attempt has been made to secure the extension of the Wamego accomodation train to Manhattan during the three days of the Association's meetings. This would enable persons going from Manhattan to spend most of the day in the Association and return at night.

President Fairchild will enjoy to the best of his ability the privileges accorded him by the generosity of Faculty and students in making him a life director of the National Educational Association. He will attend the meetings of the National Council as a member of the Committee on Industrial Education.

#### Our Students and Graduates.

During the twenty-three years of its existence, the College has received 2818 different students,—1908 young men and 910 young women. Most of these have come from farmers' homes, and, after from three months to three years of study, have gone back to such homes without graduation.

The number of graduates up to 1886 is 118. The class of 1886 numbered 21. Graduates previous to 1877 pursued, with two exceptions, a classical course, and received the degree of Bachelor of Arts. Since 1877, all have received the degree of Bachelor of Science after a four-years course in the sciences with good English training.

The 76 young men are engaged in business as follows:

Farmers.....	19
Florist.....	1
Fruit-growers.....	2
Mechanics.....	4
General Business men.....	10
Printer.....	1
Civil Engineers.....	2
Officer in Army.....	1
Observer in Signal Service.....	1
Teachers and Students of Special Sciences.....	8
Teachers in Public Schools.....	7
Doctors and Students of Medicine.....	4
Dentist.....	1
Ministers and Students of Theology.....	4
Lawyers and Students of Law.....	8
Deceased.....	3

The 42 young women are occupied as follows:

Housewives.....	17
Teachers.....	13
Milliners and Dressmakers.....	2
Clerks and Typewriters.....	2
At Home.....	6
Deceased.....	2

The following table shows the annual attendance by counties and States for the past ten years:

KANSAS COUNTIES.	1877	1878	1879	1880	1881	1882	1883	1884	1885	1886	Total
Allen.....	1	1	1	1	1	1	1	1	1	1	7
Anderson.....	4	6	4	1	3	2	2	4	3	9	38
Atchison.....	1	2	2	1	1	4	1	1	3	13	1
Barbour.....	1	2	2	1	1	2	2	2	1	5	1
Bourbon.....	1	2	2	1	1	2	2	2	1	5	1
Brown.....	1	2	5	6	7	6	2	1	1	2	26
Butler.....	1	2	3	3	6	1	2	1	1	1	23
Chase.....	1	2	4	1	1	2	3	3	4	8	22
Chautauqua.....	10	18	18	13	10	3	3	3	1	2	81
Cherokee.....	1	2	2	1	1	2	2	2	1	1	1
Clark.....	6	10	3	9	10	18	23	26	26	25	156
Clay.....	1	1	1	1	1	1	1	1	1	1	4
Cloud.....	1	1	3	3	1	1	3	3	6	6	26
Coffey.....	1	3	3	5	6	4	1	1	1	1	18
Cowley.....	1	2	2	1	1	2	1	1	1	1	42
Crawford.....	13	5	6	9	9	6	15	16	6	6	91
Decatur.....	3	5	3	4	4	3	4	1	2	2	6
Dickinson.....	1	1	1	1	1	1	1	1	1	1	4
Douglas.....	1	1	1	1	1	1	1	1	1	1	4
Elk.....	2	1	1	2	2	1	1	1	1	1	14
Ellsworth.....	2	1	1	2	2	1	1	1	1	1	11
Finney.....	1	1	1	1	1	1	1	1	1	1	1
Ford.....	1	1	1	2	1	4	7	6	6	6	30
Franklin.....	2	2	1	1	1	2	3	1	1	1	26
Greenwood.....	3	2	1	1	1	2	3	2	1	1	1
Harper.....	1	1	1	2	3	6	6	2	2	1	1
Harvey.....	2	2	1	1	2	11	14	2	2	1	27
Jackson.....	3	4	4	2	1	1	1	1	1	1	61
Jefferson.....	2	1	1	1	1	1	1	1	1	1	58
Jewell.....	3	10	8	11	5	2	1	1	1	1	60
Johnson.....	1	1	1	1	1	1	1	1	1	1	10
Kingman.....	5	1									

In this table the first two years are calendar years, while the other eight are school years. This will explain the seeming decrease of students in 1879.

The enrollment by classes for 1875-76 is shown by the following table:

Classes:-	Gentlemen.	Ladies.	Total.
Resident Graduates.....	1	3	4
Fourth Year.....	17	7	24
Third Year.....	23	12	35
Second Year.....	64	27	91
First Year.....	195	78	273
Special Course.....	1	1	
Total.....	301	127	428

During the year there have been admitted 233 new students, 92 of whom expressed an intention of taking the full course, 103 a part of the course, and 38 are undecided.

The following table shows the occupations of the parents of the students admitted for the first time during the year:-

Farmer and stock-raiser.....	156	Editor.....	3
Housekeeper.....	3	Barber.....	1
Merchant.....	13	Banker.....	4
Hatmaker.....	1	Miller.....	5
Florist.....	1	Day laborer.....	2
Nurserymen.....	2	Minister.....	6
County official.....	4	Insurance agent.....	1
Hotel keeper.....	3	Police judge.....	1
Dentist.....	2	Physician.....	3
Mason.....	3	Civil engineer.....	1
Teacher.....	3	Real estate agent.....	1
Painter.....	2	Lawyer.....	1
Carpenter and mechanic.....	8	Book-keeper.....	1
		Laundress.....	1
		Not given.....	4

For native States the following answers were given:-

Arkansas.....	1	New York.....	4
California.....	2	North Carolina.....	2
Canada.....	2	Ohio.....	15
England.....	2	Pennsylvania.....	13
Illinois.....	33	Scotland.....	2
Indiana.....	14	Saxony.....	1
Iowa.....	18	Tennessee.....	2
Kansas.....	98	Utah.....	1
Kentucky.....	3	Vermont.....	3
Michigan.....	2	West Virginia.....	3
Mississippi.....	2	Wisconsin.....	2
Missouri.....	8		

By classes the average age for the past year has been:-

Resident Graduates.....	22.39 years.
Fourth-year class.....	21.19 "
Third-year class.....	19.68 "
Second-year class.....	18.57 "
First-year class.....	18.48 "

The average age of all students in attendance has advanced in ten years about eight months and five days. There has been an advance in eight of the ten years covered by these statistics, as will be seen by the following table:-

Year.	Age.	Year.	Age.
1877	18.12	1881	19.35
1878	18.16	1882	18.81
1879	18.61	1883	19.09
1880	18.80	1884	19.59
1881	18.84	1885	18.98

#### Board and Rooms.

No provision for rooms and board is made at the College. The students all find homes in families or in family boarding-houses, at rates varying from \$3.00 to \$4.00 a week for board with furnished room. Lists of boarding-places, with prices and accommodations, can always be had at the President's office, and students are required to notify the President of their rooms when selected.

Lists of rooms for rent without board may also be had by those who wish to board themselves. Directions and advice are gladly given by any of the officers.

#### Degrees.

The degree of Bachelor of Science is conferred upon students who complete the full course of four years and sustain the examinations.

The degree of Master of Science is conferred in course upon graduates who comply with the following conditions:-

1. Each candidate shall furnish evidence satisfactory to the Faculty of proficiency in at least one of the groups of arts and sciences here named:-

**Arts:-** Agriculture. Botany. Horticulture. Chemistry. Engineering. Zoölogy. Architecture and Designing. Entomology. Domestic Economy. Physics.

2. Each candidate shall present for consideration by the Faculty a satisfactory thesis, involving original researches in line with one or the other of the courses pursued as above, and shall deposit a perfect copy of it in the College Library.

3. Application to the Faculty for sanction of the lines of study and research selected should be made as early as the first day of November, and the subject of the thesis must be settled upon as soon as the first day of January preceding the Commencement at which the degree is expected.

4. Candidates must be from graduates of three or more years' standing, unless a post

graduate course of one year or more has been pursued at this College, in which case the second degree may be conferred two years after graduation.

Outlines of direction for study and research in various arts and sciences, with special adaptation to the wants and opportunities of individual applicants, will be furnished, at request, to all graduates; and Professors in charge will gladly aid by correspondence in any researches undertaken.

#### General Duties and Privileges.

General good conduct, such as becomes men and women anywhere, is expected of all. Every student is encouraged in the formation of sound character, by both precept and example, and expected, "upon honor," to maintain a good repute. Failure to do so is met with prompt dismissal. No other rules of personal conduct are announced.

Classes are in session every week-day except Saturday, and no student may be absent without excuse. Students enrolled in any term cannot honorably leave College before the close of the term, unless excused beforehand by the Faculty. A full and permanent record of attendance, scholarship and deportment shows to each student his standing in the College. After each monthly examination, during the first year of attendance, a report of

Hall is open for a social gathering of Faculty and students, in which music, literary exercises and friendly greetings find place.

Public lectures by prominent men of the State are provided from time to time, as opportunity offers. All are free.

The Manhattan Horticultural Society meets monthly, and other farmers' associations occasionally, at the College, and the students have the privilege of attending these meetings.

#### Industrial Arts.

The training in these departments is designed to be systematic and complete in each, so that the student, following a single line diligently through the four-years course, gains the essentials of trade and a reasonable degree of skill. Those who wish only a general acquaintance with the arts can take shorter courses in several of them; but all are to select with a definite purpose. In the established course, young men are required to take the regular term in the carpenter shop and on the farm and gardens, whatever the industrial chosen; young women are required to give one term to sewing, one to practice in the kitchen laboratory, and one in the dairy.

*Agriculture and Horticulture* are required of young men as industrials during one term of

trade of carpentry will be given work in the direct line of that trade as far as possible. Work on roofing, framing, bridge work and stair-building will be done by models. Careful instructions will be given in sharpening, fitting up, and taking general care of all tools required in the work. Carpentry is required of young men during one term of the first year with especial reference to facility in use of common tools.

In iron work, instruction is given in ordinary work,—forging, filing, tempering, etc.

*Sewing.*—Young ladies are taught in all ordinary forms of sewing with needle and machine, fitting and trimming dresses and other garments. A straight-line system of cutting and fitting is taught, and systems are furnished to students at wholesale rates. They may furnish materials, and work for their own advantage during the hour of practice, under the direction of the Superintendent. One term of sewing is required before the completion of the first year.

*Printing.*—Two courses are pursued in this art. In one the student is taught the implements or tools used in typography, and how to use them; composition; imposition; correcting proof; technical terms; presses and their workings; and the general duties of a first-class workman. Everyone is encouraged in the study of the rise and progress of printing and related arts. Habits of accuracy and thoroughness are required, in order to advancement. The second course of lessons, alternating with those in the first, embraces instruction in spelling, capitalization, syllabication, punctuation, proof-reading, preparation and criticism of essays, and such work as will make the student accurate and expert in language. Wilson's Punctuation is the text-book; but much of the instruction is oral,—such as grows out of every-day experience of the office.

Admirable drill is furnished by the INDUSTRIALIST to all, but especially to those who take the full course. The printing which the departments of the College require gives to the advanced student a fair knowledge of the principles of job work.

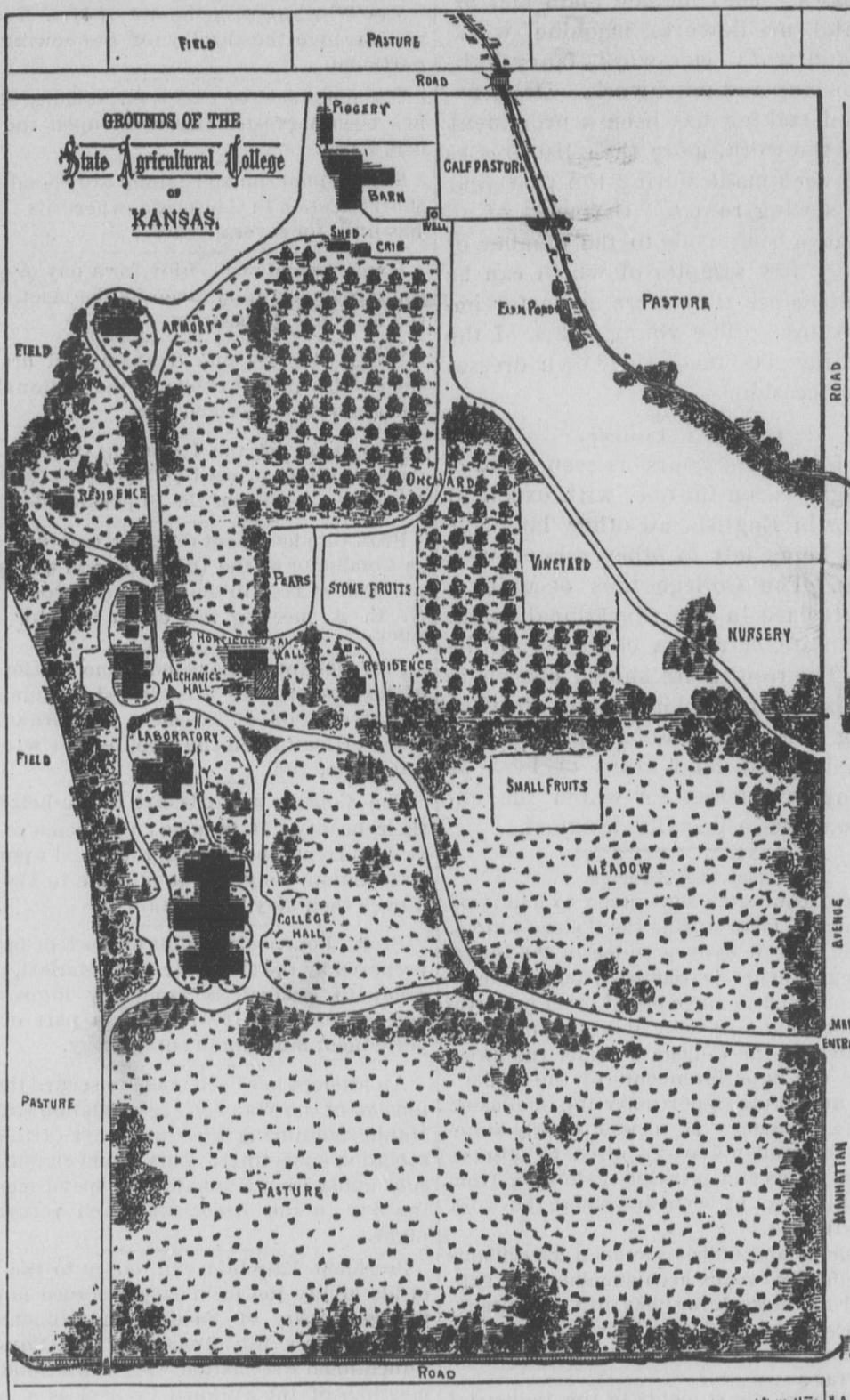
*Telegraphy.*—The course of training involves for beginners the characters that compose the alphabet, and combinations of these characters into words and sentences,—attention being paid to spelling and to short and precise expression in messages,—abbreviations, signals, forms of messages, train orders, reports, etc. To the more advanced is given regular line business,—as press reports, messages, cipher messages, and orders in all forms used by prominent telegraph companies, together with the necessary book-keeping, upon exact copies of blanks in actual use, thus giving the student an understanding of the work of an operator. A portion of the line is devoted to instruction in the use and management of lines, batteries, instruments, etc. The elementary principles, of electricity, magnetism and electro-magnetism involved in telegraphy are taught and illustrated by experiments. The more recent inventions relating to the art are discussed and explained. Pope's Handbook of Telegraphy is used as a text-book.

*Instrumental Music.*—Provision is made for the teaching of music upon instruments of all sorts. A full course upon the organ or piano extends over four years, including harmony and composition; but the students may take lessons for a single term if they choose. The College furnishes the instruments for daily practice, but the instruction is paid for at the usual rates, as given under "Expenses." Music may be the industrial for young women, unless some other is required in the course. Young men may take music in addition to their course, if able to keep up standing in classes.

#### General Course of Study.

Each student is expected to take three studies besides one hour's practice in an industrial art; and variation from this rule can be only with consent of the Faculty.

Parallel courses are offered to both sexes with such differences as their necessities seem to call for. The following gives the general scope of the two; but fuller explanations are found in the annual catalogue.



advancement is made to parents; and any student, upon leaving College at the close of a term, may receive a certificate of standing.

Chapel exercises occupy fifteen minutes before the meeting of the classes each morning, and unnecessary absence from them is noted in the grades.

Every Friday, at 1:30 p.m., the whole body of students gather for a lecture from some member of the Faculty, or for the rhetorical exercises of the third and fourth-year classes. On each Wednesday, at the fifth hour, all the classes meet for exercises in elocution and correct expression.

There are three prosperous literary societies, two of them of many years standing. All meet weekly in rooms set apart for their use. The *Alpha Beta* is open to both sexes, and holds its meetings Friday afternoons. The *Webster* and the *Hamilton* admit to membership gentlemen only, and meet on Saturday evenings.

The Scientific Club, composed of members of the Faculty and students, meets in the Chemical Laboratory on the fourth Friday evening of each month.

Every Friday evening a students' prayer-meeting is held in a College Society Room, led by a member of the Faculty. On the Sabbath students are expected to attend services at least once in the different churches of the city.

Branches of the College Y. M. C. A. and Y. W. C. A. hold weekly meetings at the College. Occasionally during each term the College

the second year and one term of the third year. In these, practice is made to illustrate and emphasize the teaching, and covers essentially the same ground.

*Cooking.*—During the winter term, the young ladies who have lectures on Household Economy are required to cook one hour per day. They are taught various methods of making the substantial articles of food, as well as to spend some time on the dainty dishes. During the term, they have practice in waiting on the table, in serving guests, and in arranging for evening companies; putting into immediate application the lectures of each day.

*Dairying.*—During the spring term, daily instruction and practice in the different branches is given to ladies of the second year by the Instructor in Household Economy. Here the regular daily work is supplemented by a short course of lectures intended to explain the best practice in the arts of butter and cheese-making, and to give the reasons therefor. The following topics cover, in the main, the instruction given in the class: Influences affecting the quality and quantity of milk; butter-making; the household and factory systems of cheese-making; creameries; "deep" and "shallow" setting systems; packing and preserving butter.

*Work in Wood and Iron.*—All students enrolled in classes for woodwork will be given lessons in sawing and planing to test their skill, and advanced as fast as their work will warrant. Students who desire to learn the

FIRST YEAR.	FALL TERM.	Arithmetic. English Analysis. Geometrical Drawing.
	WINTER TERM.	Book-keeping, Drawing. English Structure. United States History.
SPRING TERM.	FALL TERM.	Algebra. English Composition. Botany.
	WINTER TERM.	Algebra completed. Elementary Chemistry. Horticulture. 14 Lectures in Military Science.
SECOND YEAR.	FALL TERM.	Geometry. Practical Agriculture or Household Economy. Organic Chem. and Mineralogy. 12 Lectures in Military Science.
	SPRING TERM.	Geometry completed, 5 weeks. Drawing, 5 weeks. Entomology. Analytical Chemistry.
THIRD YEAR.	FALL TERM.	Trigonometry and Surveying. Physiology. General History.
	WINTER TERM.	Mechanics. Agricultural Chemistry. Rhetoric.
FOURTH YEAR.	SPRING TERM.	Civil Engineering or Hygiene. Drawing. Chemical Physics. English Literature.
	FALL TERM.	Agriculture or Literature. Meteorology. Psychology.
WINTER TERM.	Logic, Deductive and Inductive Zoölogy. Structural Botany.	